WEST MARKETING ISSUE
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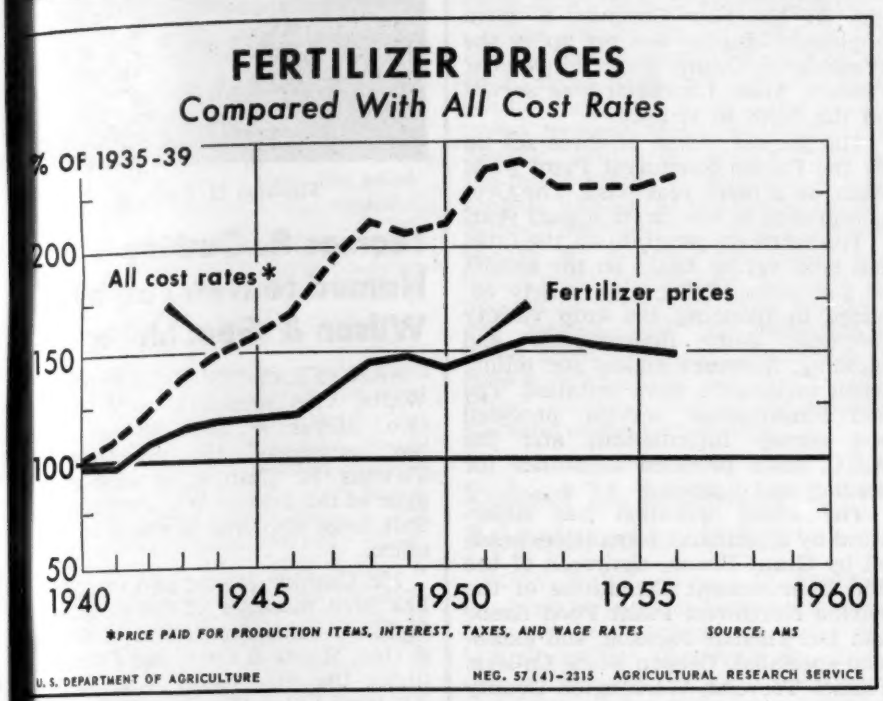

A BETTER BUY—Fertilizer is a better buy today than it was in 1940, the U.S. Department of Agriculture points out in the 1957 outlook issue of the Farm Cost Situation, released late in May. Prices received for farm products are more than twice as high as they were in 1940, while the index of prices paid by farmers for fertilizer is only 53% higher now than it was in 1940. The index of prices paid for fertilizer this spring is unchanged from a year earlier, USDA reported. It is the only farm-production cost item that has not had a net increase in price during the past year. Generally prices paid by farmers this spring are up about 5% over those of a year ago.

Chemists Study New Analysis Methods at Purdue Conference

LAFAYETTE, IND.—Fifty fertilizer industry and state control chemists, meeting at Purdue University, May 17-18, made a first-hand study of the merits of two new chemical analysis methods important to the fertilizer industry, in connection with a program sponsored jointly by the chemical control committee of the National Plant Food Institute and the university's biochemical department.

The 2-day school on chemical analysis was organized by Dr. E. D. Schall and Dr. F. W. Quackenbush of Purdue and Vincent Sauchelli, chairman of the Institute's chemical control committee. Thirty five chemists from the fertilizer industry and 15 from state control laboratories attended the sessions.

Numerous methods are available to chemists for the determination of potassium in fertilizers and potash materials, among which the flame photometric and the chloroplatinate methods are widely used. Although the flame photometric has not yet been approved officially by the Association of Official Agricultural Chemists, it is rapid and useful where the potassium content is known to be small, while the chloroplatinate method, officially approved, is a gravimetric method and is time consuming and expensive to carry through, it was stated. The new method demonstrated at the Purdue school is of the volumetric type. It is less expensive and compares favorably with the flame photometric method in speed and with the gravimetric method in accuracy, the conference was told.

One of the purposes of the school was to familiarize the fertilizer chemical analysts with the procedures so that when a collaborative study on the method is later organized, the participants will be able to follow the procedures more uniformly than is customarily the case.

The official method for determining nitrate nitrogen in the presence of a high content of chlorides has been criticized because nitrogen losses occur which penalize the manufacturer. New, modified procedures have been developed by several investigators.

Purdue University's biochemistry department demonstrated its modified procedure at this school. The attending chemists had the opportunity

(Continued on page 8)

AP&CC Doubling Granular Potash Output at Trona

LOS ANGELES—American Potash & Chemical Corp. is doubling production capacity of granular potash at its Trona, Cal., plant, according to a joint announcement by E. M. Kolb, AP&CC eastern general sales manager of heavy chemicals, and Frank McGrane, AP&CC sales manager of agricultural chemicals.

The project—which will cost approximately $750,000—is part of the company's current $3,500,000 improvement program at the Trona plant. Installation of the new potash granulating units is being done in two parts, with the first half now nearing completion and the final half scheduled to be completed by the end of 1957.

"We believe the new granulating units will permit us to fill all of our national requirements for the 1958 planting season," the announcement said.

Hercules Producing New Insect Repellent

WILMINGTON, DEL. — Hercules Powder Co. has announced that its new plant for the production of meta "Delphene," new insect repellent, is in commercial production at the Hercules naval stores plant site in Brunswick, Ga. Company officials said that "production in the new plant will be substantially increased during the coming weeks to meet unusually heavy demands for the product."

Meta "Delphene" is diethyl metatoluamide.

NAC Annual Meeting Scheduled for Sept. 4-6

WASHINGTON—The National Agricultural Chemicals Assn. will hold its annual meeting in the Essex and Sussex, Spring Lake, N.J., Sept. 4-6, L. S. Hitchner, NAC executive secretary, has announced. John A. Rodda, manager, Fairfield Chemical Division, Food Machinery and Chemical Corp., is program chairman for the meeting.

South Carolina Phosphate Tests Look Promising

One to Three Months Needed to Complete Exploratory Program

BEAUFORT, S.C.—"Encouraging" results have been obtained in an investigation of phosphate ore deposits within Beaufort County tidelands, the Beaufort Mining and Development Co. has reported.

However, "our work is far from complete," according to R. G. Pollitzer of Beaufort, secretary of the company.

A report last month noted that from one to three months will be required for completion of the exploration and survey program, purpose of which is to accurately determine the quantity and composition of deposits, and whether it will be economically profitable to mine and process the ore deposits.

(Continued on page 17)

Firm Looks to Flaming Gorge for Phosphate Power

SALT LAKE CITY—Major chemical companies are discussing an offer to purchase energy from the Flaming Gorge Dam for use in production of elemental phosphorus near Vernal, Utah, it was reported in Salt Lake City recently.

The report came to light with the disclosure that San Francisco Chemical Co. of Montpelier, Idaho, had solved successfully the beneficiation problems necessary to utilization of some 700 million tons of phosphatic material, 15 miles north of Uintah County community.

With that problem solved, the affiliate of Stauffer Chemical Co. is now faced with the problem of early electrical energy necessary for early conversion of the phosphate deposits.

Flaming Gorge, located over the Utah line in Wyoming, has a potential of about 80,000 kilowatts of energy. This is a variable potential, as the dam, while producing energy, also is a key part of river control.

17 Million Gallons of Liquid Sanitary Insecticides Sold in 1956, CSMA Says

—See Tables On Page 8—

CHICAGO—Nearly 17 million gallons of liquid and slightly more than seven million pounds of powder insecticides were sold in the U.S. last year to keep human beings and their animal charges ahead of the bugs, the Chemical Specialties Manufacturers' Assn. has reported.

Space sprays, chief weapon against flying insects like flies and mosquitoes, chalked up the biggest sales gain among all types of sanitary insecticides, accounting for 4,188,304 gallons or about a quarter of all liquid sales, as compared with 1,797,515 gallons in 1955. The 1956 gallonage of sanitary space sprays reached the consumer in 24,269,693 packages varying in size from those containing less than a pint to bulk containers of more than a gallon and represented nearly half of the total market for household insecticides, the CSMA reported at its 43rd mid-year meeting here.

Total sales of sanitary liquid insecticides in 1956 amounted to 16,968,600 gallons, up 60% from the 1955 total of 10,557,386 gallons. However, the CSMA reported, the 1956 figures included 2,366,533 gallons of area fogging sprays, a category not reported in the association's four previous annual surveys. Discounting

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SPENCER PILOT PLANT—Officials of Spencer Chemical Co. inspect the first product produced at the demonstration mixed fertilizer plant Spencer just opened. Dr. John R. Brown, Jr., vice president research and development, right, shows Jack D. Denton, vice president agricultural chemicals division, center, and Joe C. Sharp, agricultural chemical technical service manager, how higher analysis granulated fertilizers can be produced in this new experimental plant. Mr. Denton said in the opening ceremonies that the plant will be used to demonstrate process improvements which will be developed here to all fertilizer manufacturers.

FOR RESEARCH, DEMONSTRATION

Spencer Chemical Dedicates Pilot Fertilizer Mixing Plant

KANSAS CITY—A pilot fertilizer mixing plant for research and demonstration was officially dedicated May 15 by Spencer Chemical Co. The plant will be used to develop research work on mixed fertilizer processing and make information available to all fertilizer manufacturers through demonstration and reports. The new 250-lb.-per-hour plant is located at Spencer's Jayhawk Works near Pittsburg, Kansas.

The pilot plant will be operated by Spencer's research and development group, and the information will be disseminated by the agricultural chemical division's technical service department.

Dr. John R. Brown, Jr., vice president, research and development, said that Spencer should be able to develop fundamental processing information with this plant. He said that it is important to the well being of the fertilizer industry to improve manufacturing techniques, and that private enterprise with a major stake in the future of this industry should properly pioneer in formulating fundamental data which will insure continued technological progress.

Jack C. Denton, Spencer's vice president, agricultural chemicals division, also present at the opening ceremonies, expressed the company's intentions of making information developed by the pilot plant completely available to all fertilizer manufacturers. "The success of this program," he said, "will depend upon the broad distribution of the improved processing techniques which will result from this research." The responsibility for the distribution of information belongs to Joe C. Sharp, manager of agricultural chemical technical service.

Mr. Denton indicated that specific projects presently being researched with the pilot plant facilities include studies to determine how to produce higher analysis mixed fertilizers with economical raw materials, to improve physical properties and mechanical condition of mixed fertilizer, and to improve generally the economics of fertilizer manufacture by getting better mileage from low cost raw materials.

The pilot plant is equipped with an ammoniator-granulator, dryer, cooler, screens, crushers, accurate metering devices and temperature recording equipment necessary to develop the most efficient process information. The plant has the potential of using any commercially available raw materials and producing any analysis that is chemically feasible.

Product Changes Name

BOUND BROOK, N.J.—Chipman Chemical Co. has announced that its new miticide and scalicide, originally designated as "Tetram 75" will be known as "Chipman 6199" until further notice. The "Tetram 75" name had to be dropped because of its similarity to another tradename, the company states.

OKLAHOMA FIELD DAY

STILLWATER, OKLA.—Seven different experimental pastures with special emphasis on fertility maintenance practices will highlight a majority of the research featured during the Oklahoma State University Heavener agronomy field day June 5. During a three-hour field trip beginning at 1 p. m., southeastern Oklahoma farmers and ranchers may observe and hear discussions on grazing results obtained from fertilized and unfertilized pasture combinations, said Prof. W. C. Elder, A&M agronomist in charge of the field day program.

SEE Page 9 . . .

Better Selling
Richer Sales Fields for Dealers

500 Attend Field Day on Oregon Demonstration Farm

PORTLAND, ORE. — More than 500 persons visited the Oregon Grasslands Farm Demonstration Project near Hillsboro, Ore. on May 14. There was a steady stream of busses carrying visitors from the Fair Grounds at Hillsboro to the Lennox Blatchford farm, scene of the demonstration.

Busses were met by tour guides and taken to seven stations set up and manned by technical men who explained the various fields—crops, management, types of fertilizer used, etc. At the Fair Grounds, a farm implement display was set up by the Washington County Farm Implement Dealers Assn. Luncheon was served on the farm to visitors.

The project is one of three set up by the Pacific Northwest Plant Food Assn. on a three year basis. The Oregon project is now in its second year.

The fertilizer program on the farm has been set up based on the results of soil tests. College specialists assisted in planning the crop variety program, dairy management and building. Moisture stakes for telling when to irrigate were installed. The soil conservation service provided soil survey information; and the A.S.C. office provided assistance for seeding and liming.

The whole operation was supervised by a technical committee, headed by Grant Braun, chairman of the Soil Improvement Committee of the Pacific Northwest Plant Food Assn., and Dr. Thomas Jackson, soil extension specialist, Oregon State College. Palmer Torvend, Washington County extension agent, supervises the operation and is contact man for the committee on the project.

Another field day is planned for late August after harvest, when production figures will be available.

Dr. Charles E. Palm Heads New York Station

ITHACA N. Y. — Dr. Charles E. Palm, head of the department of entomology and limnology at Cornell, has been named director of the Cornell University Agricultural Experiment Station and director of research for the New York State Colleges of Agriculture and Home Economics.

Dr. Palm's appointment was effective June 1. He succeeded Dr. C. E. F. Guterman who died March 27. The new research director has been professor and head of department of entomology and limnology since 1938. He started as an assistant in 1932, became an instructor in 1934, received his Ph.D. degree from Cornell in 1935, and was appointed assistant professor in 1937.

During his term as department head, new research was instituted in livestock insect control, insect biochemistry and insect physiology. Research was expanded in the field of nursery and florist crops, forage insect control, insect toxicology and insecticide chemistry, vegetable and potato insect control and pesticide application equipment.

ENTOMOLOGIST TO RETIRE

ST. PAUL—Herbert L. Parten, extension entomologist at the University of Minnesota since 1927, will retire from the University staff June 30. He was born in Minneapolis in 1893. He was superintendent of parks for Billings, Mont., from 1914-17 and served in the U.S. Army on the Mexican border in 1916 and in Europe during World War I. A Purple Heart winner, Mr. Parten saw action in the 1918 Argonne and St. Mihiel battles. After the war, he attended the University and received his B.S. degree in 1925. As a research worker, he specialized in green house insects and is author of several articles and bulletins on rat and pocket gopher control, vegetable insect control and animal parasite control.

Thomas R. Cushing

Thomas R. Cushing Named to New Post by Wilson & Geo. Meyer

SAN FRANCISCO—Ralph S. Waltz, vice president of Wilson & Geo. Meyer & Co., Intermountain, has announced the promotion of Thomas R. Cushing to sales manager of the firm with headquarters in Salt Lake City and in charge of that office.

Mr. Cushing for the past four years has been manager of the phosphatic fertilizer sales department of Wilson & Geo. Meyer & Co. in San Francisco under the supervision of Mr. Waltz. At Salt Lake City he will succeed John R. Foster, resigned. The change was effective May 15 with Mr. Foster assisting Mr. Cushing about June 15.

Mr. Cushing, active in the fertilizer business since 1949, first joined the Meyer firm in 1952 in Seattle. Born in Michigan, he was graduated from Albion College, Albion, Mich., in 1948.

Wilson & Geo. Meyer & Co., Intermountain, is exclusive sales agent for the entire output of the Garfield, Utah, plant of Western Phosphates, Inc., which exceeds 100,000 tons of phosphatic fertilizers annually. Western Phosphates, Inc., is jointly owned by Stauffer Chemical Co., Kennecott Copper Corp. and American Smelting and Refining Co.

The Western Phosphate production is marketed through 18 western states, Mexico and British Columbia under the Anchor Brand.

Wilson & Geo. Meyer & Co., Intermountain, is a subsidiary of the 107 year old firm of Wilson & Geo. Meyer & Co., western distributors of agricultural and industrial chemicals, which has its headquarters in San Francisco, and district offices and warehouses in Seattle, Portland and Los Angeles.

Pennsalt Introduces Gibberellin Aerosol

PHILADELPHIA—An experimental formulation for aerosol dispensers introduced by Pennsalt Chemicals Corp. to handle the new plant growth stimulant, gibberellin, was demonstrated during recent meetings of the Chemical Specialties Manufacturers Assn. The package consists of a 3-ounce glass vial with a metered valve which provides a measured dosage with each release of the valve. The contents of the dispenser will yield in excess of 500 applications, Pennsalt said.

Components of the aerosol were supplied by Wheaton Glass Co. and Valve Corporation of America, manufacturers of aerosol containers and valves respectively; Pennsalt Chemicals Corp., producer of Isotron, the aerosol propellent used in the new package; and Merck and Co., supplier of the active ingredient Gibrel, the company's tradename for gibberellin plant growth substance.

Fertilizer Trade Reminded of Hazards in Ammonium Nitrate Solutions in Mixtures

WASHINGTON, D. C.—A precautionary warning against certain hazards in connection with the use of ammonium nitrate solutions in formulations of mixed goods has just been issued by the National Plant Food Institute.

The text of the memorandum to the fertilizer industry, as issued by the Institute, reads as follows:

"The following is a precautionary warning to all mixers using large quantities of ammonium nitrate solutions in formulation of mixed goods along with substantial amounts of 66° Be sulfuric acid. Swift & Co. has found evidence that large lumps which occasionally form and discharge from the mixer may be extremely dangerous if allowed to go into the piled mixed goods without being cooled.

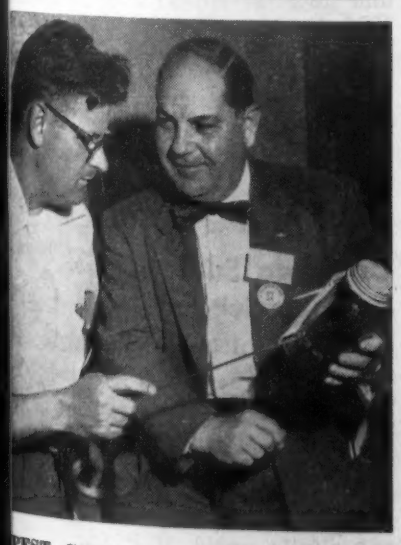
"A recent unscheduled shutdown during production of a 12-12-12 grade with 421 pounds of nitrogen solution and 256 pounds of 66° Be (93%) sulfuric acid and 33 pounds of anhydrous ammonia per ton of mixed goods necessitated dumping the mixer contents on to a separate pile immediately after shutdown and, therefore, by-passed the normal cooling operation. This small pile soon began to evolve dense white fumes and gave evidence of spontaneously reacting throughout the entire mass. A temperature check indicated the heat generation had brought portions of the pile up to over 500°F. The reaction was brought under control in about 30 minutes after the pile had been thoroughly broken up, spread with dolomite and flooded with water.

"A recheck of operations, after starting up, indicated that occasionally a few lumps would come out of the mixer which were extremely hot and evolving white dense fumes. A coarse grid was installed at the mixer discharge to separate these from the freshly mixed goods going to the cooler.

"Laboratory studies were then carried out which indicated that fertilizer salts promote the rapid breakdown of ammonium nitrate when heated. Such mixtures, when heated to 420°F. begin a slow decomposition of the ammonium nitrate which eventually is destroyed.

"Moreover, when a mixture contains about six percent of ammonium nitrate and is heated to 450°F. the breakdown becomes extremely rapid and is self-sustaining. A large temperature increase in the product results from this fast decomposition. Hence, in order to avoid the possibility of generating a self-sustaining reaction within a pile of freshly made goods, it is evident that no extremely high temperature lumps should ever be allowed to become submerged in mixed goods with a large percentage of ammonium nitrate. Conservative calculations indicate that a six inch diameter lump which has undergone the spontaneous reaction requires a minimum of 10 minutes to cool to 400°F. on exposure to usual ambient air flow in rotary coolers.

"This experience at Swift & Co. and its laboratory studies emphasizes that (1) no large, hot lumps of high solution mixtures should ever be allowed to reach the storage pile, (2) solution, acid and dry solids fed to the mixer should be kept within reasonable balance at all times, (3) localized over-heating in the mixers should be avoided, (4) large, hot lumps must be diverted by grids to prevent them from reaching the storage section, and (5) temperature levels about 450°F. can initiate a dangerous spontaneous reaction in fertilizer mixtures having six percent or more ammonium nitrate."



PEST CONTROL—Wendy Fisher, Paramount Pest Control Service, Portland, president of the Pacific Northwest Pest Control Operators Assn., is shown above looking over insect specimens with Merle Weaver, Portland, association secretary-treasurer. The photo was taken during the annual meeting of the association (see page 2 of the May 20 issue of Croplife).

Robert M. Magness Appointed by U.S.I.

NEW YORK—Robert M. Magness has been named assistant to the manager of heavy chemicals sales for U.S. Industrial Chemicals Co., Division of National Distillers and Chemical Corp., it has been announced by Lawrence C. Byck, Jr., manager of heavy chemical sales.

Mr. Magness will assist Mr. Byck in sales of U.S.I. fertilizer raw materials, including ammonia, nitrogen solutions, sulfuric acid and phosphatic fertilizer solution (wet process phosphoric acid).

Mr. Magness was graduated from the University of Maryland in 1950 with a chemical engineering degree. He has been employed for the past three years as a sales engineer on sulfuric acid and phosphate plants for Chemical Construction Corp., and previous to that he had been doing fertilizer development and research work with the U.S. Department of Agriculture in Beltsville, Md.

Louis H. Wilson To Get 4-H Citation

WASHINGTON—Louis H. Wilson, secretary and director of information of the National Plant Food Institute, has been named one of ten "Friends of 4-H," to be honored during the 27th National 4-H Conference in Washington, D. C., June 15-21, for his "outstanding contributions to the nation-wide development of the 4-H club program." The announcement was made by the U.S. Department of Agriculture.

With the other nine to be honored, Mr. Wilson will receive an engraved plaque which will be presented in a citation ceremony during the afternoon conference assembly on June 19.

"Emphasis will be placed upon each recipient's long and valued service to agriculture and to the progress of 4-H clubs whose membership now totals about 2,200,000," USDA said.

AGRONOMY DAY

LAFAYETTE, IND.—Purdue University's annual agronomy field day for farmers has been scheduled for June 20 at the agronomy farm seven miles northwest of Lafayette. Experiments and demonstrations during the day will emphasize soil fertility and small grains. Tentative topics to be discussed include insect problems, weeds, fertilizer application, economics of fertilization and plant diseases.

Gibberellic Acid May Make Winter Lawns Possible, Scientist Says

RAHWAY, N.J. — Gibberellic acid someday may make possible green lawns in winter.

This apparent effect of gibberellic on turf was recently disclosed by Dr. Sylvan H. Wittwer of Michigan State University. Speaking at a seminar sponsored by Merck & Co., Inc., Rahway, N. J., Dr. Wittwer told a group of Merck and Rutgers University scientists that he had sprayed the chemical on strips of browned, frozen grass. In five days the treated turf turned green while the untreated sections remained brown, even though the temperatures ranged well below freezing.

Dr. Wittwer said that gibberellic acid seems to eliminate dwarfism in some plants. He cited tests made on dwarf varieties of peas and tomatoes. In all instances, their characteristic dwarf traits were not seen.

A wide range of vegetable crops has responded to gibberellic acid in the tests conducted by Dr. Wittwer and his associates. Parsley, a slow growing plant, is considerably speeded up. Broccoli heads 7 to 10 days earlier when treated with gibberellic acid. Such vegetables as spinach, cucumbers, eggplant, celery and beans also show a favorable response.

Dr. Wittwer pointed out that tests on food and fibre crops are still in the experimental stage, and gibberellic acid should not be used by the public on these plants until its safety has been established. Merck, which manufactures the chemical under the name "Gibrel," has also cautioned against its use on edible crops at this time. The product should be limited to certain household ornamentals.

MISSOURI FIELD DAYS

COLUMBIA, MO.—The University of Missouri Soils and Crops Field Days will be held June 5-6 at Columbia.

Samuel L. Nevins

ON YOUTH COMMITTEE—Samuel L. Nevins, vice president of Olin Mathieson Chemical Corp., has been named a member of the National Committee on Boys and Girls Club Work, Chicago. Long interested in youth work, Mr. Nevins has for the past five years concentrated his efforts in enlarging the scope of the national 4-H Alumni Recognition program. This activity is supported by the plant food division of Olin Mathieson, which is Mr. Nevins' area of responsibility.

A. F. Reed Takes New Position with Monsanto

EL DORADO, ARK.—A. F. Reed has relinquished his duties as director of sales of Lion Oil Co. Division of Monsanto Chemical Co. to become an assistant in sales matters to executives of both Lion and the Inorganic Chemicals Division of Monsanto, T. M. Martin, president of the Lion division, has announced.

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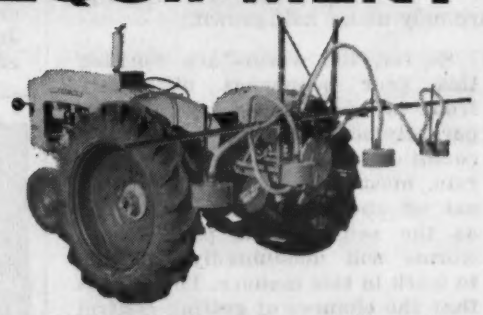
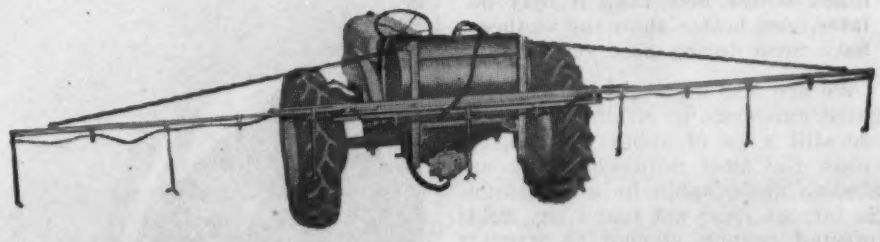


New BLUE DDT Granular applicator



The BLUE 6 Row Sprayer

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INSECT, PLANT DISEASE NOTES

Cotton Being Attacked by Boll Weevil in Mississippi

STARKVILLE, MISS.—(Via Western Union)—Large populations of boll weevils are attacking young squaring cotton in this area, according to word May 28 from A. G. Bennett, leader in extension entomology. He says that farmers are being urged to use insecticides when they find around 100 boll weevils to the acre.

Growers were also being urged to watch for damage by fleahoppers in the Mississippi area.

Low Temperature Slows Massachusetts Insects

AMHERST, MASS.—There are still apple scab spores in the leaves on the ground and continued protection from scab is necessary when evening rains keep trees wet all night. Farmers are being urged to watch for powdery mildew in orchards, since the disease was not killed out by low temperatures last winter.

Insect activity was expected to increase with currently rising temperatures. About 60 curculio beetles per tree, about half of the expected total, have been collected at the Waltham field station. Egg laying is still much below normal for this stage of apple development, but high temperatures may stimulate activity. Red-banded leafroller larvae have been found feeding along the midribs of leaves.—C. J. Gilgut and O. C. Roberts.

Armyworms Infest Grain, Cutworms Damage Corn

COLUMBIA, MO.—In the southern half of the state, armyworms are becoming a problem in rank grain—particularly in barley. Damage so far is largely leaf stripping, but as the worms get larger and the grain begins to ripen, head cutting will start.

Check fields closely, and if as many as 4 armyworms per square foot, are found, we suggest the field be sprayed.

This has developed into an ideal year for cutworms. Heavy damage to corn is beginning to show up in some fields in the central and southern sections of the state. This injury will increase during the next couple of weeks since most of the worms are only about half grown.

So far, the worms are working this year somewhat differently from the past several years. Apparently because of the packed soil conditions resulting from so much rain, most of the plants are being cut off above the ground. As long as the soil remains packed, the worms will undoubtedly continue to work in this manner. This means that the chances of getting control by spraying a band over the row is much better now than it may be later, and better than the chances have been during past years.

We are also finding a lot of variegated cutworms in alfalfa, and there are still a lot of aphids around. On crops, the most noticeable ones are English grain aphid in small grains. So far, we have not found any fields infested heavily enough to warrant spraying.—Stirling Kyd and George W. Thomas.

Thrips Damaging Cotton, Arizona Report Says

PHOENIX, ARIZ.—The weather continued cool and unseasonable for the growth of young cotton. In fact, it was ideal for cotton to be injured by thrips. It is still not too late to control thrips in many fields. More than one application of the insecticide will be needed.

The extension entomologist in Maricopa County examined many fields of cotton during the week of May 24 and found thrips were causing severe injury in many of them. Some growers are reporting very poor results; however, some fields where three treatments have been made are now showing different results. Actual results cannot be measured until the cotton is picked. This is one season where control of thrips in Maricopa County would have paid dividends by applying insecticides as soon as the plants reached the two-leaf stage.

Aphid populations have dropped off considerably. A few cabbage loopers are appearing and some fields should be watched as they may become serious.

In Pinal County, assistant county agricultural agent Robertson and the extension entomologist visited several fields that continued to show thrip injury. Some treated fields are definitely showing better plants. Many fields should be treated for control of thrips.

Thrips continue to be a problem and controls are needed in Pima County.

In Graham County, thrips and aphids continue to be a problem and controls are in progress in all parts of the county.—J. N. Roney.

Good Cotton Invites Boll Weevil Activity

RALEIGH, N.C.—Reports from all parts of the state are that we have the best stand of cotton we have had in years. In a few places where replanting was practiced, cotton is still small for this time of the year, but it is up to a good stand. However, boll weevils are out. As is well known, boll weevils begin to move from hibernation early in the season. This is not unusual. In 1950 the first were seen around May 1st and they emerged until about June 25th with all time high numbers showing up from June 5 to June 25th. In fact, over 60% of the weevils emerged during this period. These records were taken at the Florence, S.C. station USDA ⅛ acre trap plots.

Development in northern Carolina counties occur at least one week later each season. In 1956, the weevils started out as usual in early May, but dry and cool weather slowed emergence until about June 5 when large numbers appeared in the trap plots. They came out in large numbers for only about two weeks.

Large numbers are out now in fields with ideal hibernation quarters in the southeastern counties. Fewer numbers are showing up in other fields. On Friday, May 17, some 20 fields examined in Florence County revealed 3 weevils; Scotland County on May 22 reported 10 weevils per 100 plants in one field and from 1 to 3 adults per 100 plants in five other fields. An observer in Hoke County on May 22 reported 20 per 100 plants in one field and few numbers in other fields.

Alfalfa, Grains and Other Crops Hit in Maryland

COLLEGE PARK, MD.—A heavy population of first generation adults of the alfalfa weevil was noted in Howard County. Larvae continue to feed on alfalfa in most sections. Damage to unsprayed alfalfa has been severe. If the weevil was not controlled satisfactorily on the first cutting, spray the stubble immediately after the hay is removed. Meadow spittlebug adults are appearing on the Eastern Shore and in central Maryland. Damage from this pest will soon be over.

Eastern Shore farmers are experiencing outbreaks of armyworm. Damage to small grains is common in sections of Queen Anne's, Talbot, Caroline, and Worcester counties. In one barley field in Queen Anne's County larvae averaged 10 per linear foot of row and larvae were beginning to cut off barley heads. Treatment by airplane is underway in several counties. In Queen Anne's, armyworms have moved from grain to clover-timothy and in one field sweet corn was damaged and replanting was necessary. There is also damage to young legumes in the grain fields.

Mexican bean beetle adults were noted on snap beans in Wicomico County. Bean leaf beetles are generally abundant on beans and soy beans. Flea beetles are abundant on many crops including sweet corn, tomatoes, and potatoes. Potato aphids are from light to moderate on potatoes and tomatoes on the Eastern Shore. Untreated cucumbers and melons on the lower Shore are being hit hard by striped cucumber beetles. Occasional hornworms on tomatoes, apparently brought in with plants.

Tobacco plants are being set in the field in southern Maryland. Farmers were urged to control flea beetles and vegetable weevils. These pests have been abundant this spring. The vegetable weevil first found in Maryland in 1952 is becoming a major pest of tobacco in beds. Damage to tobacco in Calvert and St. Mary's counties has ranged from light to heavy. Recently this pest has been found on tobacco in Anne Arundel and Charles counties.—Theo. L. Bissell and Wallace C. Harding.

WINS SCHOLARSHIP—David Lee Terry, right, a junior at the University of Kentucky, has been awarded the National Plant Food Institute's $200 Agronomy Club Scholarship. Formal presentation of the grant was made by Dr. W. H. Garman, left, chief agronomist of the Institute, during the College of Agriculture and Home Economics annual awards banquet on the university campus. Terry is the son of Mr. and Mrs. Clovis J. Terry of Burkley, Ky.

MAIL BUGS CORRECTLY

COLUMBIA, MO.—Tips to people desiring to send insect specimens to state offices for identification have been suggested by Stirling Kyd, extension entomologist at Columbia, Mo.

He says there are two main points to remember: 1. Put the insects in a vial or bottle containing alcohol. Don't just drop them in an envelope and mail. When we get such a specimen, about all we can tell for sure is that the insect had a rough time of it going through the stamp cancelling machine.

2. Write your name and county with pencil on a piece of paper and slip it in the vial. If you don't have your name in the vial, too often we can't tell where the specimen came from.

Wide Variety of Pests Active in Iowa Counties

AMES, IOWA—Bean leaf beetle is reported from Monona County, eating round or oval holes in soybean leaves. This is much earlier than in past years. The adults "play dead" when the plants are disturbed. Both adults and larvae may eat off seedling plants at or below ground level and larvae may eat roots.

Spittle bugs are present in red clover and alfalfa in eastern Iowa in small numbers—1 per 10 plants, and plant bug nymphs and adults average 5 per sweep in alfalfa. Potato leafhoppers are now present throughout the state, averaging 1 per sweep in alfalfa.

The lesser migratory grasshopper averaged 1 first instar nymph per 10 sweeps in alfalfa in Ida and Cherokee counties. Pea aphids, winged and wingless, average 1 per sweep in alfalfa in northwest Iowa.

Armyworm moths are appearing in light traps at Ames and Ankeny. They started May 14, and now range 10 to 20 per night in the traps.

European corn borer pupation at Ankeny, Iowa, was 10% on May 24 and 16% at Ames. This is behind 1956. On May 22, 1956, pupation had reached 50% and moths had emerged May 27. If warm weather continues we may expect development to proceed rapidly and moth flight should begin soon.

The coffee bean weevil was found in seed corn shipped into Iowa from Florida.—Harold Gunderson.

Colorado Survey Shows Little Activity of Pests

FT. COLLINS, COL.—A recent survey of the state failed to show signs of either the green pea aphid or the spotted alfalfa aphid. Alfalfa weevil populations were reported "light." However, Gordon Mickle, extension entomologist at Colorado State University, says that the spotted alfalfa aphid, if it follows the usual pattern, should put in an appearance in early June. According to 1956 records, the insect showed up in the lower Arkansas Valley about June 10 after migrating from states to the south and east.

No overwintering forms of the spotted alfalfa aphid have been found as yet in Colorado. Therefore, it must move in from warmer

climates, and it is too early to predict the extent of infestation.

The green pea aphid, which was the most destructive insect in alfalfa fields in 1956, did not show up in the state-wide survey. On that basis, Mr. Hickle doesn't expect much trouble from it this year.

Likewise, the entomologist believes alfalfa growers should have an easier time against the alfalfa weevil. Egg deposits are fewer and infestations later than normal. But growers are urged to watch for the weevil at the end of the first cutting or early in the second.

Illinois Reports Presence Of Borers, Armyworms

URBANA, ILL.—Armyworms seem to be more common in rank stands of grass than in grain, and only very occasional fields at present have damaging populations. In southern Illinois some worms are now full grown, whereas hatching is just well started in central and western Illinois. Although the armyworm situation is not alarming, it will be wise to observe exceptionally luxuriant grain and grass fields for the next few weeks, as moth flight increased during this past week.

Corn borer pupation is almost complete in southern Illinois, and emergence is well under way. No emergence has occurred in central and western Illinois, although pupation ranges from 50 to 75%. In northern Illinois pupation is just beginning.—H. B. Petty.

North Dakota Girds for Coming of Grasshoppers

FARGO, N.D. — General spraying for grasshopper control in North Dakota won't be getting into full swing for several weeks, but there are a few scattered infested areas that are already calling for attention.

This observation comes from Wayne J. Colberg, extension entomologist at the North Dakota Agricultural College. He says, in viewing the over-all grasshopper situation on May 27, that the hatch is just getting underway in most areas. However, in a few heavily infested roadside and marginal stubble patches, hoppers are already moving into crop lands.

Rains delayed the usual preliminary surveys on North Dakota's immature grasshoppers until the middle of May, but enough results have come in to emphasize the need for all out control measures.

The recent rains haven't done grasshoppers any harm, but Mr. Colberg says the healthier crops that will probably result should be better able to withstand hopper attacks.

However, he emphasizes the need for a grasshopper control program, and urges every farmer to fight the pests, particularly in uncultivated land—roadsides, fence rows, weed patches and shelterbelts. Grasshoppers missed by marginal control spraying will move on into grain fields, and if unchecked will follow up on soybeans, potatoes and flax.

Delaware Notes Coming Of Armyworms

NEWARK, DEL.—The first outbreak of armyworms in Delaware was reported in eastern Kent County on May 20, and a small infestation of half-grown larvae was noted in a wheat field near Rising Sun the following day.

Asparagus beetles, particularly the 12-spotted asparagus beetle are numerous in the Middletown area. Pea aphids in the same area need control treatment.

Colorado potato beetles, potato aphids and flea beetles are present in some fields in Kent County. Flea beetles and Colorado potato beetle adults and eggs have also been found on tomatoes in Kent. Corn borer eggs were found on potatoes, also.—Donald MacCreary and J. W. Heuberger.

Alabama's Corn Borer Population Increasing

AUBURN, ALA. — The European corn borer is beginning his battle for Alabama's new corn, grain sorghum, and pimiento pepper crops. His armies are camped in only 15 North Alabama counties now, but nothing stands in the way of a southward march again this year.

W. A. Ruffin, Alabama Polytechnic Institute extension entomologist, reports that borer moths are already appearing in early sweet corn patches. And Dr. W. G. Eden, entomologist with API agricultural experiment station, noted that more borers are appearing at the Crossville substation than ever before.

The Alabama borer armies have been growing ever since a spearhead force moved in during 1950. These hordes are in Lauderdale, Lawrence, Limestone, Madison, Marshall, Morgan, Winston, Blount, Cherokee, Colbert, Cullman, DeKalb, Etowah, Franklin, and Jackson counties. Last year this insect reduced corn yields in some fields 25%.

Dr. Ruffin revealed that detailed surveys will be carried on this summer to pinpoint the location and determine the size of the borer's forces.

Warm Weather to Step Up Insect Populations

ST. PAUL, MINN. — Extensive damage is now appearing on several species of shrubs and trees as the result of insect infestations which should have been treated earlier in the spring. These pests include the elm leaf miner, and aphids of different kinds.

Although cool temperatures have delayed fruit insect activity, spider mites are active, but had not increased on apples or strawberries during the week ending May 24. Growers were cautioned to keep close watch on the situation if temperatures should rise significantly.

About 15% of the expected population of red-banded leaf roller has hatched in the LaCrescent area. (May 23) The coming of warm weather is expected to increase this activity. Some larval feeding was noted on water sprouts in the center trees in LaCrescent.

Borers Active in North Carolina, Report Says

CAMDEN, N.C. — European corn borers are attacking not only corn, but early Irish potatoes are their first target before corn appears in the fields in this area, County Agent S. A. Tuten has reported.

Damage from this pest has been increasing in Camden County during the past few years, Mr. Tuten reports. Some growers in the area are

(Continued on page 21)

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Monsanto Resumes Production at Nitro; Work Starts on New Alabama Facilities

ST. LOUIS—Production of Niran, Monsanto Chemical Co.'s ethyl parathion insecticide, was resumed May 22 at the company's Nitro, W. Va., plant, five weeks after the April 16 explosion there which cost eight lives, halted output of this product and destroyed facilities for methyl parathion, a related compound (Croplife, page 1, April 22).

In making the announcement, Charles H. Sommer, vice president and general manager of Monsanto's Organic Chemicals Division here, also disclosed that construction has begun at the company's Anniston, Ala., plant on new, expanded facilities to produce both Niran and methyl parathion. The area formerly occupied by the methyl parathion unit at Nitro will be put to other plant use.

Monsanto's decision to locate its new facilities for the two insecticides at Anniston was based on a much closer proximity there both to needed raw materials and to markets, Mr. Sommer said. Chemically, the new plant will be integrated to chlorine and caustic supplies available at the Anniston site. Mr. Sommer also said that methyl parathion production at Anniston will be "on the doorstep" of the cotton-growing South where it is used in large volume for boll weevil control.

Mr. Sommer did not reveal the planned capacity of the new Anniston unit but confirmed that it will "considerably exceed" the former output at Nitro. Scheduled for completion late this fall, the new plant will be fully instrumented for maximum safety, Mr. Sommer said, adding that each step in the methyl parathion process will be isolated as a maximum precaution against a recurrence of the explosion experienced at Nitro.

PIMENTO GROWING

SPARTANBURG, S.C.—Many farmers in this area are turning to growing pimentos on land once devoted to cotton, having found that soils which grow good cotton also produce good pimentos. Recommended soil preparation is 600-800 lb. of 5-10-10 fertilizer per acre, applied well ahead of transplanting; followed by three side dressings in mid-June, mid-July and early September, using a nitrogen-potash mixture.

NEW RESEARCH CENTER—The above illustration is an artist's conception of how the new research center of Escambia Chemical Corp. will look when completed. The new 50,000 sq. ft. building is now under construction at Wilton, Conn.

Escambia Chemical Building Research Center in Connecticut

NEW YORK—Construction of a research center at Wilton, Conn., by Escambia Chemical Corp. is now underway, according to Dr. Nat C. Robertson, vice president and director of research.

This new center, a 50,000 square foot building on a 46-acre site, will provide for research and development activities and customer and technical service laboratories of Escambia. Specifically, its work will include research activities in petrochemicals, the plastics industry and in related fields.

Dr. Robertson will be in charge of the center, and will be assisted with the business affairs by Robert G. Reed of Auburndale, Mass., as business manager.

Since Escambia Chemical was organized in 1954, it has conducted its own research and technical service activities at facilities in Cambridge and Newton, Mass., owned by National Research Corp. and will continue there until Escambia occupies its new Center early in 1958.

Escambia Chemical opened its first unit, an ammonia and ammonium nitrate fertilizer plant, at Pensacola, Fla., in December, 1955. (Story of dedication, Croplife, Feb. 27, 1956, page 1.) This plant currently is serving the agricultural Southeastern region of the nation with anhydrous ammonia, ammonium nitrate solutions (Bay-Sol) and ammonium nitrate concentrates (Ammo-Nite).

Production recently began at an adjacent polyvinyl chloride resins plant which is producing vinyls for the plastics industry.

Meantime, construction is underway on a third unit, a methanol plant, which is scheduled for completion early in 1958.

California Appointment

SACRAMENTO, CAL.—Harry E. Spires of San Francisco has been appointed assistant chief, Bureau of Field Crops, California Department of Agriculture, succeeding William L. Hunter who was appointed chief. Mr. Spires served from April 1, 1952, as supervising field crops inspector for the Bureau in San Francisco. He will make his headquarters in Sacramento. A native of Pennsylvania, Mr. Spires received his B.S. degree in chemistry from the University of California at Berkeley.

FRONTIER PROMOTION

WICHITA—John B. Childress has been promoted by the Frontier Chemical Co., Wichita, to the post of product manager for industrial chemicals, according to an announcement by M. E. Clark, vice president—marketing. He assumes charge of marketing, technical service and promotion for Frontier basic chemicals used in industry, including chlorine, caustic soda, muriatic acid, chlorinated solvents and other products.

Status Changed for New York, Maine Areas In Gypsy Moth Drive

WASHINGTON—The "generally-infested" classification was lifted May 21 from eight counties and 12 towns in southeastern New York where aerial spraying for gypsy moth eradication is now in progress, the U.S. Department of Agriculture announced.

At the same time, USDA said that eight towns have been added to the federally-regulated gypsy moth area in Penobscot County, Maine, and listed as "generally-infested."

The New York localities, which will will remain in the federally-regulated area, are the counties of Delaware, Nassau, Orange, Putnam, Rockland, Suffolk, Sullivan and Westchester, as well as the towns of Beekman, East Fishkill, Fishkill, Pawling, Poughkeepsie and Wappinger, in Dutchess County, and the towns of Gardiner, Marlboro, Plattekill, Rochester, Shawangunk and Wawarsing, in Ulster County. Inspection and certification requirements will apply to regulated articles moved to these localities from "generally infested" areas.

Extensions of the regulated area in Penobscot County, Maine, comprise the towns of Edinburgh, Enfield, Howland, Lincoln, Lowell, Mattamiscontis, Maxfield, and Passadumkeag.

The gypsy moth federally-regulated area includes the entire states of Connecticut, Massachusetts and Rhode Island, and infested portions of Maine, New Hampshire, Vermont and southeastern and northeastern New York.

American Agricultural Chemical Co. Elects Three Vice Presidents

NEW YORK—Election of three vice presidents has been announced by the American Agricultural Chemical Co.

B. R. Richey was elected vice president, relinquishing his former direct production responsibility, in order that he may devote his efforts to broader areas of administrative work.

W. J. Turbeville, Jr., was elected vice president—fertilizer sales, with full responsibility for all phases of fertilizer sales operations.

D. S. Parham was elected vice president—production, with full responsibility for all phases of production, including phosphate rock mines.

Stauffer Names Assistant To Eastern Sales Manager

NEW YORK—Stauffer Chemical Co. has appointed C. D. Julien as assistant to the eastern sales manager, agricultural chemicals division. Mr. Julien will be located at Stauffer's eastern headquarters in New York, and will be responsible for inventory control of both raw and finished materials and consigned stocks.

Mr. Julien received his B.A. in business administration from Texas University and joined Stauffer in 1950 at the Weslaco, Texas, sales office. He was later promoted to assistant sales manager of the southern region, and subsequently made assistant sales manager of the mid-west area, in Omaha, Neb., which position he held at the time of his recent transfer to New York.

CORN DISEASE PUBLICATION

RALEIGH, N.C.—The results of the latest research on corn diseases and their control have been published by the North Carolina Agricultural Extension Service. The booklet, "Major Corn Diseases in North Carolina," was prepared by J. C. Wells, plant pathologist at North Carolina State, and R. R. Nelson, U.S. Department of Agriculture plant pathologist. The effects of nine of the major corn diseases in North Carolina are covered in the publication.

Jay B. Ford, Jr.

Jay B. Ford, Jr. Joins Pacific Coast Borax Division

NEW YORK—Pacific Coast Borax Co. Division of United States Borax & Chemical Corp. has announced the appointment of Jay B. Ford, Jr. as assistant general manager of this division. Mr. Ford, a graduate of Stanford University and the Harvard School of Business Administration, was formerly with the United States Potash Company Division, where he had been assistant treasurer and subsequently assistant general manager.

According to J. F. Corkill, vice president and general manager of the division, Mr. Ford will make his headquarters in New York and will be generally responsible for administrative and executive functions within the division.

Dow Starts Production at New Ethylenediamine Plant

FREEPORT, TEXAS—A new plant for the production of ethylenediamine has started operations at the Texas Division of the Dow Chemical Co., at Freeport, expanding substantially the company's capacity for this alkylene amine.

Donald Williams, vice president and director of sales, said that the new facilities will enable Dow to produce ethylenediamine with a concentration of 92% or greater, a significant increase over the concentration previously available from the company.

The material is used in the manufacture of textile resins, chelating agents, polyamide resins, fungicides, pharmaceuticals, picric acid salts, the piezoelectric compound ethylenediamine tartrate and other products. In addition to EDA, the plant will produce diethylenetriamine and triethylenetetramine.

March Chemical Output Up

WASHINGTON, D.C.—Production of anhydrous ammonia, ammonium nitrate, nitric acid, phosphoric acid and sulfuric acid for the month of March, 1957, were all greater than that of the previous month, according to a report just issued by the Bureau of Census, Department of Commerce. Synthetic anhydrous ammonia output for March was 320,733 short tons as compared to 294,103 for February; ammonium nitrate, 227,902 against 201,241 tons; nitric acid, 251,245 tons against 231,148; phosphoric acid 380,992 tons as compared to 351,157 tons; and sulfuric acid 1,404,121 tons in March as compared to 1,309,898 tons in February.

FORAGE FIELD DAY

PULLMAN, WASH.—Washington State College's annual forage conservation field day will be held here June 12. Program chairman is Dr. J. L. Patterson, Washington State College associate agronomist.

Industry Patents and Trademarks

2,789,060

Pesticidal Composition. Patent issued April 16, 1957, to Willy Spangenberg, Hamburg-Blankenese, and Karl Culemeyer, Hamburg-Langenfelde, Germany, assignors to Willy Spangenberg & Co., Hamburg-Eidelstadt, Germany. A pesticidal coating composition adapted for the treatment of wood and as a priming coat therefor consisting essentially of a major proportion of at least one drying oil which is an ester of a higher unsaturated fatty acid and a polyfunctional alcohol, the latter having at least three functional groups and at least four carbon atoms, said ester having distributed there through a minor proportion of at least one pesticide.

2,789,077

Methods for Producing DDT-Benzene Hexachloride Insecticides and Resulting Compositions. Patent issued April 16, 1957, to Murray Zakheim, Philadelphia, Pa., assignor to The Pennsylvania Salt Mfg. Co., Philadelphia. A new composition of matter consisting essentially of a DDT-BHC mixture in which the DDT is present in the form of a technical DDT containing at least 70%, 2,2-bis-(p-chlorophenyl)-1, 1, 1-trichloroethane and having a setting point not higher than about 100° C. and in which the BHC is present in the form of a technical BHC containing a gamma isomer content within the range 25 to 50% and melting below 80° C., said mixture containing from about 50 to about 90 parts of said technical BHC for every 10 to 50 parts of said technical DDT and having the property of remaining liquid for several hours when cooled to room temperature after having been heated to a molten state.

2,789,879

Recovery of Uranium from Phosphoric Acid. Patent issued April 23, 1957, to David Kaufman, Cambridge, Mass., assignor to the United States of America, as represented by the U.S. Atomic Energy Commission. A process for recovering uranium values from phosphoric acid containing the same comprising the steps of treating the phosphoric acid with a reducing agent to place the uranium in the uranous state, and then precipitating the uranium by adding a base to the reduced solution.

2,790,012

Deodorization of Benzene Hexachloride. Patent issued April 23, 1957, to Roy E. Dunn, William B. Grandjean, and Frank L. Padgitt, Baton Rouge, La., assignors to Ethyl Corp., New York. A process for deodorizing benzene hexachloride compositions containing above about 80% of the gamma isomer, based upon the weight of said benzene hexachloride, comprising adding a quantity of water to a solution of the benzene hexachloride composition, the solvent of said solution being selected from the group consisting of lower aliphatic alcohols, ethylene glycol, diethylene glycol, dimethyl ketone, methylethyl ketone, diethyl ketone, methyl isobutyl ketone, di-isobutyl ketone, and dibutyl ketone; the solution being at a temperature above about 40° C. and the quantity of water being between about 5-50 percent, based on the weight of solvent in the solution; immediately but gradually cooling said solution to a temperature below about 35° C. to precipitate an essentially odor-free product; and separating the precipitated product from the aqueous solution.

2,790,702

Acid Treatment of Phosphate Rock to Recover Phosphates and Uranium. Patent issued April 30, 1957, to Robert F. McCullough, Glenview, Ill., assignor to the U.S. of America as represented by the U.S. Atomic Energy Commission. The process of recovering mineral values which comprises admixing phosphate rock and sulfuric acid to form a pasty acid mix, said sulfuric acid being added in an amount sufficient to produce predominantly monocalcium phosphate, mixing gaseous chlorine into the admixture, leaching the admixture with aqueous medium, separating insoluble material from aqueous solution of reaction products, reacting the insoluble material with sufficient sulfuric acid to convert the previously unreacted material to water soluble reaction products, contacting the solution of water soluble reaction products with an agent for selectively removing uranium values therefrom and recovering from the aqueous solution of reaction products at least, the P_2O_5 components.

2,790,744

Amide Rodent Repellent Compositions. Patent issued April 30, 1957, to Newton H. Shearer, Jr., and Harry W. Coover, Jr., Kingsport, Tenn., assignors to Eastman Kodak Co., Rochester, N.Y. A food normally eaten by rodents and containing a rodent repelling quantity of a compound selected from the group consisting of N-(1, 1, 3, 3-tetramethylbutyl) acrylamide, N-isopropylacrylamide, N-tert-butylacrylamide, N-isopropylmethacrylamide, N-(1, 1, 3, 3-tetramethylbutyl)-hydracrylamide.

2,790,745

Amide Rodent Repellent Compositions. Patent issued April 30, 1957, to Newton H. Shearer, Jr., and Harry W. Coover, Jr., Kingsport, Tenn., assignors to Eastman Kodak Co., Rochester, N.Y. A food normally eaten by rodents and containing a rodent repelling quantity of a compound selected from the group consisting of N-1, 1, 3, 3-tetramethylbutylisobutyramide, N-cyclohexylisobutyramide, N-tert-butylisobutyramide, N-isopropylisobutyramide, N-isobornyllactamide, N-tert-butyllactamide, and N-tert-butyllactamide acetate.

2,790,743

Substituted 1,4-Hydroquinone Fungicidal Compositions and Method of Using Same. Patent issued April 30, 1957, to Nicolaas Dost and Gerarda Francisca Elisa Maria Klap-Dierick, Amsterdam, Netherlands, assignors to Shell Development Co., New York. A method for controlling fungi which comprises subjecting the fungi to the action of a compound selected from the class consisting of the 1,4-hydroquinones of the formula

$$(OH)_2Ar(SR)_n$$

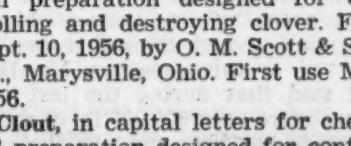
in which Ar represents an aromatic nucleus selected from a hydrocarbon of the group consisting of benzene and naphthalene, each R represents a hydrocarbon radical having up to 10 carbon atoms, and n represents an integer of from 2 to 4, inclusive, and alkali salts thereof.

2,791,493

Manufacture of Sulfuric Acid. Patent issued May 7, 1957, to Jean Moritz, Chatou, France. Apparatus for production of sulfuric acid comprising a series of reaction chambers closed at the top and having walls of substantial surface area for external cooling and a plurality of large diameter ducts interconnecting said chambers for simultaneous passage of gas and liquid acid interconnecting the bottoms of each chamber in a series, said ducts, beginning with the outer wall of a chamber for withdrawal of gas therefrom and terminating at the center of the next chamber in series, said duct terminating at the center portion of a chamber communicating with a tower having an opening in the bottom centrally mounted within said chamber to extend vertically upward therein to a height less than that of the chamber, said tower being open at the top thereof for passage of gases into said chamber, means for spraying nitrous acid containing liquid from the top of said tower countercurrently to gases passing upwardly through said tower, means for supplying liquid to said chambers, and means for passing gas continuously in contact with said liquid and countercurrently through said towers from chamber to chamber in a series.

2,791,599

0,0'-Dialkyl S(Alkyl Sulfoxyethyl) Phosphorothiolates as Pesticides. Patent issued May 7, 1957, to David William John Lane, Cambridge, and Dennis Frederick Heath, Hauxton, England, assignors to Pest Control, Ltd., Bourn, England. New chemical compounds being sulphoxides of the general formula:



Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Hi-Ni-Po, in capital letters, for fertilizers. Filed Oct. 19, 1956, by International Minerals & Chemical Corp., Chicago. First use Oct. 2, 1956.

Ni-Po, in capital letters, for fertilizers. Filed Oct. 19, 1956, by International Minerals & Chemical Corp., Chicago. First use Oct. 2, 1956.

Skotch Kooler, in hand-lettered script, for insecticide. Filed April 9, 1956, by Hamilton-Skotch Corp., Hamilton, Ohio. First use March 8, 1956.

Master, in hand-drawn letters, for insecticides. Filed June 8, 1956, by Stevens Industries, Inc., Dawson, Ga. First use in 1949.

De-Roacher, in capital letters, for insecticides. Filed Aug. 16, 1956 by Quinn Drug & Chemical Co., Greenwood, Miss. First use Oct. 17, 1947.

Magic Circle, in capital letters, for animal repellent. Filed Nov. 19, 1956, by State College Laboratories, State College, Pa. First use Nov. 5, 1956.

Soil Booster, in hand-drawn capital letters, for organic fertilizer. Filed March 30, 1956, by Soil Booster Corp., Oklahoma City, Okla. First use, September, 1949.

Naco, in capital letters, for insecticides. Filed Jan. 19, 1956, by W. R. Grace & Co., New York. First use, 1945.

Sesolin, in hand-lettered capital letters, for synergists for pyrethrin insecticides. Filed Aug. 22, 1956, by Norda Essential Oil & Chemical Co., Inc., New York. First use Aug. 2, 1956.

Stopic, in capital letters, for insect repellent. Filed Sept. 5, 1956, by C. H. Boehringer Sohn, Ingelheim am Rhein, Germany.

Kansel, in capital letters, for chemical preparation designed for controlling and destroying clover. Filed Sept. 10, 1956, by O. M. Scott & Sons Co., Marysville, Ohio. First use May, 1956.

Clout, in capital letters for chemical preparation designed for controlling and destroying weeds. Filed Sept. 10, 1956, by O. M. Scott & Sons Co., Marysville, Ohio. First use July, 1956.

Bacco-Bed, in capital letters, for insecticide, fungicide, herbicide, and soil sterilant. Filed Dec. 11, 1956, by Daly-Herring Co., Kinston, N.C. First use, April 21, 1956.

Murvesco, in capital letters, for insecticides, fungicides, and preparations for killing weeds and destroying vermin. Filed Dec. 12, 1956, by The Murphy Chemical Co., Ltd., Wheathampstead, England.

Cokem, in capital letters, for chemical preparations used as fertilizers top dressing, and mulch feeder. Filed Aug. 21, 1956, by Coastal Supply & Chemical Co., Ridgewood, N.J. First use July 16, 1956.

Program Seeks Boost in Washington Potato Quality

PULLMAN, WASH.—A program to boost Washington's reputation as a producer of quality potatoes is underway, under the sponsorship of the Washington Department of Agriculture, the Washington Potato Commission, Washington State College, the U.S. Department of Agriculture and the state's potato growers.

The commission and college extension specialists and county agents are working together to provide all growers with the latest and best information on producing, harvesting, handling and storing potatoes for top quality.

In addition, researchers are stepping up research on black spot, net necrosis and other disease problems. A grant of $80,000 from the potato commission and the State Department of Agriculture is making the increased research emphasis possible.

REMEMBER TO ORDER
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Daniel A. Lundy Nelson E. Wendt

American Potash Forms Technical Service Unit

LOS ANGELES—American Potash & Chemical Corp. has established a technical sales services section to act as coordinating unit among the company's production, market development and sales departments.

Announcement of the technical services section was made by W. J. F. Francis, AP&CC vice president in charge of sales, who said the newly formed section would be a part of the sales department but would provide liaison on technical matters to the various departments.

Daniel A. Lundy, formerly western sales supervisor of boron and lithium products, will be western manager of the new section, while Nelson E. Wendt, previously head of northeastern sales, will be eastern manager. Mr. Lundy and Mr. Wendt will operate from the company's Los Angeles and New York offices respectively.

Engineer Offers Aerial Crop Dusting Tips

DAVIS, CAL.—A University of California professor has completed a series of experiments that may help a crop duster improve his effectiveness in spraying fields.

Wesley E. Yates, assistant professor of agricultural engineering at the Davis campus, wound up experiments with air applied chemicals during the past year and made the following suggestions:

Fly the plane as low as possible and apply the spray to narrow swath; locate spray nozzles at the center of the aircraft rather than near the wing tips; use a solid-jet nozzle instead of other types causing fine atomization of the spray.

He also advised use of a smoke column on the field to inform the pilot of wind speed and direction.

Mr. Yates also believes that the term "crop dusting" no longer applies, and the drift of chemicals applied in dust form is almost impossible to regulate, so that method has been largely abandoned. The experiments were conducted by Mr. Yates and engineering associate Norman B. Akesson, who took movies of balloons released from different types of planes and helicopters in flight.

CHEMISTS

(Continued from page 1)

to analyze a sample by the new procedure which is known as the reduced ion method. Loss of nitrogen by the official method occurs when the concentration of the chloride ion exceeds that of the nitrate ion; the proposed reduced ion method prevents such loss. A collaborative study on this method is also being organized.

The Institute chemical control committee is collaborating with Dr. Schall and Dr. Quackenbush of Purdue in the organization of the study in which both industry and state control chemists will participate. It is hoped that the results of the collaborative study will be available for presentation to the annual meeting of the Association of Official Agricultural Chemists this coming October and that, at least, a tentative approval of the two new procedures will be given at that time.

Texas Farmers Greet End of Six Years of Drouth

ABILENE, TEXAS—A six years' drouth, that had turned much of Texas into a desert, has now been broken by heavy rains that reached flood stages in many parts of the state. Except for a small area in the extreme western part, the Lone Star state is wetter now than it has been since 1941.

Now with planting time at hand and already past due in the southern parts, farmers are anxiously watching the skies for signs of dry weather. In some areas farmers have already planted from two to three times, only to have the fields leveled over with sudden downpours.

In South Texas rice planting is in progress, while the vegetable crops are being rushed to maturity. In the Panhandle where wheat had been written off as a total failure, some farmers now have prospects of making a fair crop.

Irrigation farmers on the High Plains have for the most part shut off their 30,000 wells and are waiting for fields to dry. County agents in these areas think that with only two or three moderate rains during the growing season, the wells will be pumped only lightly the rest of the year.

Weeds are becoming a problem in many parts of Texas, as the fields are kept muddy by recurring rains. Farmers are unable to plow, while the weeds are making a rapid growth.

Ranchers are jubilant everywhere. They have no plowing to do and are watching contentedly as cattle fatten on new found grass. In some of the drier areas where stock tanks had long been dry, ranchers now have enough water to last them the entire year.

County agents in some areas report that the subsoil moisture has been completely restored, the topsoil is completed saturated, and whatever additional rain falls will merely run off down the draws and creeks.

Texas County Stops Spread of Bindweed

CANYON, TEXAS—Bindweed in Randall County, Texas has been brought to a standstill in its spread, and in some fields is gradually being eradicated, according to John Brazzill, county agricultural agent.

Questionnaires sent out to 101 farmers with more than 58,000 acres in cultivation revealed that while bindweed was found on 2,887 acres in 1949, the infested acreage had been reduced about 500 acres by 1957.

Several methods of control have been used, including intense cultivation, 2,4-D and sodium chlorate. Some farmers were able to grow good crops by using from one to three applications of 2,4-D, but the chemical did little to eradicate the weeds, the farmers said.

The best results were obtained on spot areas where sodium chlorate was used, though the soil is sterilized for two or three seasons. Mr. Brazzill said that during the last eight years more than 600,000 lb. of sodium chlorate has been used in the county.

In addition to its field use, more than 46,000 lb. were applied by the commissioners' court to road right-of-ways during the last two years.

Grasshoppers Take Heavy Toll in Georgia

ATHENS, GA.—Grasshoppers destroyed $800 million worth of Georgia crops between 1925 and 1950, C. R. Jordan, Georgia extension entomologist, reported recently.

He said these losses do not take in account the decreased value of livestock because of forced sales nor do they estimate the cost of erosion due to land stripped of vegetation by insect feeding.

1956 Survey of Household and Industrial Insecticides

Chemical Specialties Manufacturers Assn., Inc.

Sales at Manufacturers' Level—1956

	Data in units: Less than pint	Pint	Quart	Gallon	Data in gallons: Over one gallon
SPACE SPRAYS—With knockdown agents such as pyrethrins and activators, thiocyanates, allethrin, etc., with no more than 2% DDT or other residual agents	656,130	17,135,204	5,963,951	514,408	525,327
RESIDUAL SPRAYS—With over 2% DDT with or without other materials except chlordane, dieldrin or lindane	3,842,182	8,742,704	3,084,127	385,171	163,625
RESIDUAL SPRAYS—With chlordane, dieldrin or lindane, with or without other materials (intended primarily for crawling insects)	1,179,597	9,923,832	3,645,478	466,126	355,815
FABRIC PEST SPRAYS—Products specifically intended for treating fabrics for moth control, etc.	4,000	279,803	136,611	15,308	1,619,460
LIVESTOCK SPRAYS—Oil base products to be used without dilution	36,536	56,629	138,630	856,817	973,166
LIVESTOCK EMULSION CONCENTRATES—To be diluted with water	90,374	94,645	149,175	94,139	40,236
EMULSION CONCENTRATES OTHER THAN LIVESTOCK—To be diluted with water (non agricultural)	50,941	189,329	100,666	48,480	147,483
CONCENTRATES—To be diluted with petroleum base (non agricultural)	.....	1,000	43,000	43,564	69,815
STORED GRAIN AND BIN SPRAYS NOT INCLUDED IN ABOVE	5,810	.....	800	7,113	40,912
AREA FOGGING SPRAYS—Sprays or concentrates for mosquito adulticiding	.....	.....	.....	.....	2,366,533
Totals	5,865,570	36,423,146	13,262,438	2,431,126	6,302,372

	Data in pounds: Less than 5 lb.	5 lb. and over
LIVESTOCK, WETTABLE POWDERS—To be suspended in water	300,033	1,093,960
POWDERS—For application without water	1,047,481	1,016,150
FLY BAITS	1,882,586	1,717,187
Totals	3,230,100	3,827,297

	Data in units: Pint and less	Over 1 pint
CATTLE SMEARS AND OTHER SCREW WORM REMEDIES	182,748	69,688

	2 Oz. and less	Over 2 oz.
ANT PASTES, TRAPS, ANT BAITS	1,701,194	247,097
INSECT REPELLENTS	524,498	228,178
SMALL PET INSECTICIDES—Other than powders	55,264	42,770
VAPORIZER CHEMICALS—For automotive Vaporizer installations (lindane, etc.)	572,368	22,302
Totals	2,853,324	540,347

Total Number of Packages Sold

Type of spray	1951	1952	1953	1954	1955	1956
Space	10,159,340	10,782,741	11,753,600	12,702,630	9,875,329	24,269,693
DDT	12,466,339	11,528,390	10,883,303	12,202,248	11,690,315	16,054,184
Chlordane	11,290,684	13,394,247	12,817,313	14,885,982	20,588,660	15,215,033
Fabric pest	147,785	2,035,570	1,813,858	1,191,026	722,577	435,722
Livestock (oil)	957,769	1,123,870	958,575	963,439	1,053,217	1,088,612
Livestock (Conc.)	569,961	581,492	408,295	337,524	549,533	428,333
Other Emul. Conc.	807,443	967,963	238,270	276,607	214,310	389,416
Non-Emul. Conc.	3,382	3,994	89	60,731	6,050	87,564
Stored grain	32,236	27,669	9,849	48,394	17,352	13,723
Totals	36,434,939	40,445,936	38,883,152	42,668,581	44,717,343	57,982,280

SANITARY INSECTICIDES

(Continued from page 1)

such sprays, which are applied usually by airplanes over large areas, the liquid insecticide sales in 1956 still were 38% higher than in 1955.

Gains over 1955 also were registered by DDT residual sprays, fabric pest sprays, emulsion concentrates other than livestock insecticides and vaporizer chemicals.

Principal decreases in 1956 were in packaged chlordane and dieldrin sprays, down 24% from the 1955 figure of 3,520,297 gallons; packaged oil base livestock sprays, which at 900,837 gallons were down nearly 3% from 1955; livestock emulsion concentrates, down nearly 33% from 1955 sales of 221,715 gallons; livestock wettable powders, which continued a steady downward trend from the 1953 high of 3,566,000 lb. to 1,394,000 lb. in 1956, and cattle smears and other screw worm remedies, whose 1956 sales of 252,436 units were 7.5% below 1955.

Total package sales of sanitary insecticides last year, including gallon containers, were 10,666,228 gallons, up 23% from the figure of 8,650,765 gallons reported in 1955. Total number of packages included in the 1956 sales increased 29%, from 44,717,343 in 1955 to 57,982,280 in 1956. Bulk size sales in 1956 amounted to 6,302,372 gallons.

Other survey results, based upon confidential reports of sales from 173 U.S. producers of insecticides, were as follows:

Packaged DDT residual sprays—1956 sales, 2,489,177 gallons, up 27% from 1955 sales of 1,960,935 gallons.

Fabric pest sprays—1956 sales 1,704,146 gallons, which were more than a ten-fold increase over 1955 reported sales of 155,110 gallons. This large increase, the trade association said, was in bulk sizes which totaled 1,619,460 gallons in 1956 as compared with 23,533 gallons the preceding year. Packaged sizes dropped from 131,577 gallons to 84,686 gallons last year.

Oil base livestock sprays—total sales of 1,874,003 gallons in 1956, up 4% from 1955, primarily due to an 11 per cent increase in bulk sales from 874,318 gallons in 1955 to 973,166 gallons in 1956. Packaged spray sales of this type product, however, were only 900,837 gallons in 1956 as compared with 926,275 gallons the preceding year.

Livestock emulsion concentrates—1956 sales, 189,148 gallons as compared with 354,633 gallons in 1955.

Non-emulsion concentrates—1956 sales, 124,254 gallons, a sharp increase of 131% from 1955 sales of 53,797 gallons.

North Georgia Pasture Champion Selected

JEFFERSON, GA.—A Jackson County farmer, Ernest Nunn, is pasture champion of North Georgia, winner of the annual grazing system and feed production contest sponsored by the Georgia Plant Food Educational Society.

Mr. Nunn applies 500 lb. of 4-12-12 fertilizer and 33 pounds of nitrogen per acre to his 59-acres of tall fescue, orchard grass and Ladino clover. He depends on brown-top millet and Starr millet for supplemental summer grazing for his 30 dairy cattle.

He also planted 13 acres of alfalfa as hay, and put up 50 tons of silage in 1956, in addition to the grazing and hay from his feed production program.

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

Cow talk: "I'm a Country Girl," says multimillionairess bossy. "I count the hay stacks instead of smoke stacks. The alfalfa, orchard grass and clover fields are my parks. The barn is my hostelry where I have a large comfortable room reserved for the winter."

"I am the farmer's star boarder. My milk, butterfat and calves are worth millions and millions of dollars, and that is a lot of hay in cow language.

"Over 2,000,000 farm families in the U.S. derive a major part of their income from us gals. In 1955 we produced more than 120,000,000,000 lb. of milk.

"By nature we are nervous, but we can't help it. We don't like to be crowded and pushed around, neither do we like to be beaten or chased by dogs. We like to work and we like to rest.

"We believe we like green grass and clover along with alfalfa hay better than anything else. We like it because it makes a lot of milk and milk is good for growing calves as well as for little girls and boys.

"All of us would like to average 8,000 lb. of milk because we know that amount of milk would make our owners money, and they need a lot of money these days. They are good purchasers if they have the money.

"To tell the truth, dairymen deserve to be well paid because they produce the good pasture, hay and grain we need and, on top of that, they see that we get milked seven days every week, putting in some 65 to 75 hours weekly, while so many people only work 40 hours weekly."

P.S. "We want to put a plug in for the plant food dealers who sell the NPK so that the farmers can produce what it takes for us to produce all this wealth."

Dusting School Possible If 15 Students Register

FRESNO, CAL. — An agricultural pilot training school can be organized on six weeks notice following assurance of a minimum of 15 students. Norman Akesson of the University of California has informed the Agricultural Aircraft Assn., Inc. at Chandler Field, here that it will take only that length of time to complete the necessary faculty requirements—but there must be at least 15 students.

The need for trained agricultural pilots in California is great, according to William D. Austin, executive secretary of the association, and new application forms are being sent to all California operators for distribution to interested pilots.

Clovis, N.M., Dealer's Three-Year Effort to Prove Fertilizer Program Finally Pays Off

By Jess Blair
Croplife Special Writer

Educating farmers to the point where they will put fertilizer on grain sorghums and wheat is often a difficult task. It took G. W. Groom, manager of Sacra Bros. Co., Clovis, N.M., three years before his custom spreading of nitrogen and phosphorus made much profit.

Sacra Bros. had a good business in butane and propane gas and thought fertilizer would work in nicely with these products. It was Mr. Groom's job to sell this idea to farmers of the area.

"Farther south farmers were using fertilizer on cotton with excellent results," Mr. Groom says, "but they had a lot of reasons why it wasn't profitable to use on feed and grain crops: The soil was already fertile enough; fertilizer would require too much extra water, and finally the selling price of maize and wheat was too cheap as compared to cotton."

Mr. Groom pointed out that this narrow profit margin was all the more reason why fertilizer should be used. With it they could save water by making the same production on fewer acres. A good fertilization program would more than double the profit per acre, he told them.

Now after four years the business of custom spreading is really rolling. In 1956 he spread twice as much fertilizer as the year previous and 1957 shapes up as a banner year.

Mr. Groom purposely went rather slow in building up a trade. He worked closely with the county agriculture agent in learning the soils and cropping systems of the county. He learned all he could about irrigation methods, the financial condition of farmers and their problems.

Instead of trying to fertilize 320 acres, he first insisted that land owners try only 30 or 40 acres, then compare the yields with those on the rest of the farm. Results were good from the very first, so he proceeded with more speed and confidence.

One problem peculiar to this area is that farmers had not found irrigation a big moneymaker. The wells are deep, averaging from 250 to 400 ft. deep, and with pump, motor and pipe, the farmers must spend a sizable amount to get an irrigation system. Also most wells were drilled after farmers had failed to make dryland crops for two or three years, and were deeply in debt.

"We decided our job was not to sell fertilizer and roll up a big profit so much as it was to help those men get back on their feet," Mr. Groom explained. "Since pumping costs were unusually high, every gallon of water must do some good. And this also applies to every pound of fertilizer."

At first most of the jobs were on small fields, but now many jobs will cover 320 acres or more. On these large fields, he still has one selling job to do. Many farmers insist that by putting less fertilizer on more acres they will get bigger returns. Mr. Groom tells them that 100 acres adequately fertilized will make them more money and save more water than by putting the same tonnage of fertilizer on a field twice as large. And since his recommendations have proved almost infallible, the selling job is getting much easier, he says.

The company now has three tractors equipped with fertilizer attachments and one pull-type rig, all of which are kept constantly busy during May, June, July and August. The firm does not suggest pre-planting fertilizer because this would require farmers to water an extra time.

"That's another condition peculiar to this area," Mr. Groom says, "but it's one the fertilizer dealer must know. Otherwise that extra watering with these deep, expensive wells

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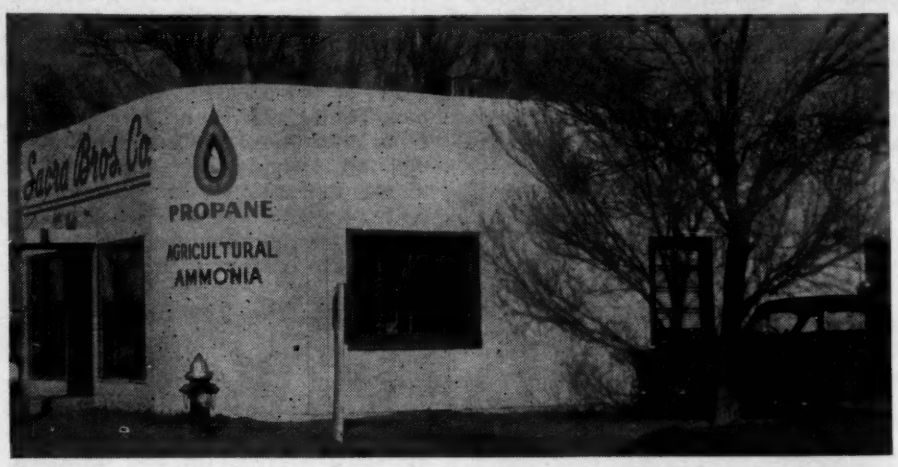


OFFICE AND PLANT—Sacra Bros. Co., Clovis, N.M., fertilizer and propane gas dealer, is headquartered in this attractive office and plant. Through the efforts of the manager, G. W. Groom, the firm has built up a profitable business of applying anhydrous ammonia and phosphates to the irrigated farms in the trade area.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

One problem which the dealer may always have with him is that of collecting his money reasonably soon after the sale of farm supplies, so that he, in turn, will be able to finance more of his business through quick turnover of capital, rather than borrowing money at the bank to carry him along. When the dealer borrows money it is always a costly proposition.

How do dealers collect the money due them? Are the ranchers and farmers paying better than a year ago, or are they slower? Have any changes in credit policies been instituted since some farm prices are lower and farm income restricted somewhat?

Dealers in various communities and states give varying answers, often surprising, but such answers are accurate. And the collection methods of dealers vary, according to needs, according to communities and according to each dealer's business makeup. One dealer, for example, will use a collection method which might not appeal to another dealer.

This variety of approach to a very common problem speaks well for American ingenuity. There are many effective ways to collect money and dealers are using just about all of them.

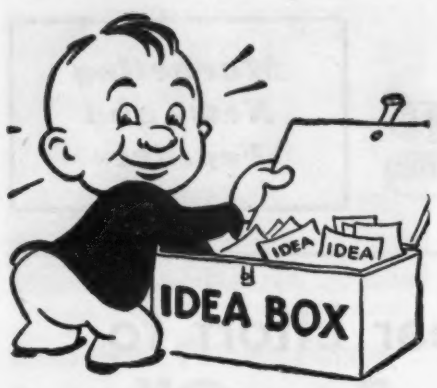
Here are what several dealers had to say about credit problems:

Dealer A—"It is not as difficult to collect right now as some people far from the actual farm scene think. The farmers in this community, at least, know that farm income has slipped somewhat, and it has made them more cautious. I find my customers are more anxious to buy for cash than ever before. They do not like to run up large charge accounts for farm supplies. Maybe they are curtailing their other purchases, such as luxury goods, but I know that our cash sales are better than ever before, and our delinquent accounts are less than a year ago.

"Don't sell the farmer short. He is watching the business setup as closely as anyone. He is pulling in his horns, and as a result he is a better operator. When some farmer now asks me for credit, I'm in a better position, too. I point out to him that the policy of most firms now is not to grant too much credit—that most folks are paying cash. I'm in a better position to have that farmer give me a full reference history before I give him credit."

Dealer B—"In talking with other dealers I learned that they were tougher in granting credit than I was. Those discussions did me a great deal of good, and I put some of my findings into practice. Recently I had a

(Continued on page 14)



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6580—Chlorosis Treatment

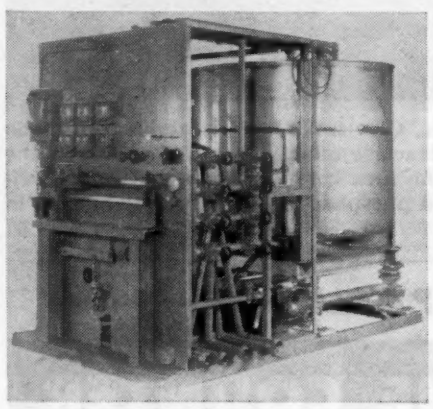
Chlorosis—caused by a deficiency of iron in plant and tree leaves which often results in below-standard harvest—can now be treated through the use of Greenz 26, an iron complex especially developed by the Crown Zellerbach Corp. for use as a leaf spray. The firm's announcement states: "When applied to foliage, Greenz 26 solution: (1) turns chlorotic yellow leaves green; (2) restores vitality to iron-deficient plants; and (3) improves quality and quantity of crop from iron-deficient trees and plants. The product may also be used for soil application to potted plants or plants having small root volume close to the surface. It can be applied with any type of spray rig." For further information check No. 6580 on the coupon and mail it to Croplife.

No. 6584—Soil Sample Bag

A standard paper bag designed specifically to hold soil samples for chemical analysis has been developed by the Shellmar-Betner Flexible Packaging Division of Continental Can Co. The company states the bags are "clean and easy to mark" and "are made of sturdy bleached Kraft paper, lined with protective glassine paper." Each bag is equipped with a steel tie that rolls up to further protect the soil contents. They can be supplied either plain or imprinted with a form that lists the farmer's name, bag contents and crop information. The bag is 3⅜ in. wide by 2½ in. deep (front to back) by 9⅜ in. tall. For complete details check No. 6584 on the coupon and mail it to Croplife.

No. 6581—Liquid Fertilizer Unit

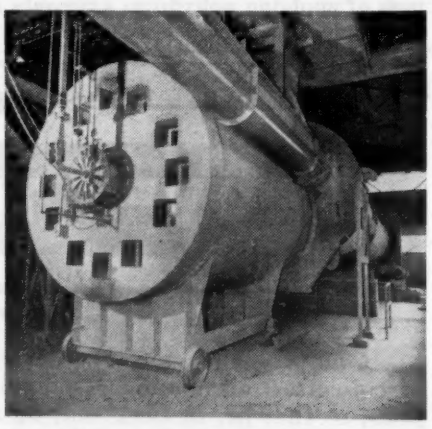
Indian Point Farm Supply announces the production of its new five-ton batch liquid fertilizer unit.



The plant will produce 200 tons per day, state company officials. Their announcement continues: "Ingredients are weighed in the stainless steel tank. Potash and urea are introduced with the fiber glass cup elevator. All control valves for mixing, pumping to storage and loading out spray trucks are within easy reach of the operator at the control panel. The unit can be purchased separately or complete with all storage tanks, plumbing and load-out lines." Pictured is the skid mixing unit. To secure complete details check No. 6581 on the coupon and mail it to Croplife.

No. 6579—Rotary Dryers

Information about Standard-Hersey dryers for processing potash and other chemicals is available from the Standard Steel Corp. The company, specializing in the design and manufacture of rotary dryers since 1878, has made rotary dryers up to 12 ft.



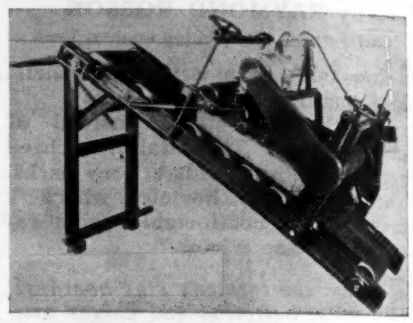
in diameter for the fertilizer industry. These concurrent rotary dryers, with floating tires mounted on shims and held in place by keeper blocks, are typical of Standard-Hersey installations in the potash and fertilizer industry, company spokesmen said. Pictured is the burner end of an 8-ft. diameter by 60-ft. long rotary dryer in operation at the potash refinery of the National Potash Co., Carlsbad, N.M. For complete details check No. 6579 on the coupon and mail it to Croplife.

No. 6585—Emulsifier

A development in facilitating the field mixing of emulsifiable pesticide concentrates with liquid fertilizers has been announced by the Emulsol Chemical Corp. The new emulsifier, Emcol H-C is an extension of Emcols H-A and H-B which have been in production for some time, for such emulsifiable concentrates as aldrin, BHC, chlordane, dieldrin, Endrin, Heptachlor and Nemagon. The material is especially recommended in formulating emulsifiable concentrates to be used in high potash fertilizer solutions. Full details are available in technical bulletin No. 47 titled, "Formulator's Manual for Liquid Fertilizer-Liquid Pesticide Mixtures." Check No. 6585 on the coupon and mail it.

No. 5669—Bag Flattener

A new heavy-duty bag flattener using power-driven "condersite" covered rolls and rough top belting has been announced by the Flexoveyor Manufacturing Co. The standard unit is 24 in. wide and has 6 ft., 8 in. centers and is powered by a 1½ h.p. gear motor. The unit can be furnished horizontal for floor mounting, or with casters for portability, or can be inclined up to 35°. Hand wheel adjustment for both the receiving and discharge ends of the hugger conveyor



is provided. All bearings are anti-friction ball bearings, with rolls having sealed-for-life ball bearings, it is explained. The company claims that the flattener "has been proved by continuous operation under severe lines" and that it "produces neat, operating conditions in production well-formed bags that are easier to handle and conserves shipping and warehouse space." Secure complete details by checking No. 5669 on the coupon and mailing it.

No. 6583—Rubber Lined Tanks

A booklet entitled, "Corrosion Protection for Agriculture and Industry," has been published by the Gates Rubber Company Sales Division, Inc. The booklet provides information about the flexibility and uses of the company's rubber lined tanks, including the storage of nitrogen fertilizer. Check No. 6583 on the coupon and mail it to secure the booklet.

No. 6582—Insect Resistance

The American Cyanamid Co., phosphates and nitrogen division, has available new literature discussing insect resistance to insecticides. Part of the literature is a folder entitled, "Malathion Insecticides, Grower's Guide." In the folder is a detailed spray and dust chart for Malathion use on fruit trees, citrus trees, vegetables, field crops, ornamentals and greenhouse plants. The product's use in fighting household insects is also outlined. Check No. 6582 on the coupon, clip and mail it to Croplife to secure the literature.

No. 6575—Portable Ribbon Mixers

A new line of portable heavy duty horizontal ribbon mixers is in production from 0.34 cu. ft. working capacity to 20 cu. ft. working capacity, announces the Young Machinery Co. The mixers are available in carbon steel, stainless steel, and Monel metal with or without heating or cooling jackets and move freely on heavy duty industrial casters. They are furnished with single or double ribbon or ribbon and paddle agitators. The mixers have dust-tight, gasketed, hinged covers with quick opening clamps, marine-type compression packing glands and anti-friction outboard bearings with sealed roller

Send me information on the items marked:

☐ No. 5669—Bag Flattener	☐ No. 6575—Mixers
☐ No. 5688—Contract Blending	☐ No. 6577—Fertilizer Equipment
☐ No. 5693—Catalog	☐ No. 6579—Rotary Dryers
☐ No. 6568—Insect Control	☐ No. 6580—Chlorosis
☐ No. 6570—Repellent Base	☐ No. 6581—Liquid Unit
☐ No. 6571—Insect Spray Chart	☐ No. 6582—Resistance Folder
☐ No. 6572—Mineral Products	☐ No. 6583—Tanks
☐ No. 6573—Booklet	☐ No. 6584—Soil Bag
☐ No. 6574—Power Sprayer	☐ No. 6585—Emulsifier

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

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Croplife

P. O. Box 67

Reader Service Dept. Minneapolis 1, Minn.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

bearing pillow blocks—one fixed and one floating. Discharge is made either from the center or the end by a slide gate or a worm gear operated plug gate. The portable mixers are furnished as complete units with motors and drives. They are recommended for mixing dry, free flowing powders or granular materials. Secure complete details by checking No. 6575 on the coupon and mailing it to Croplife.

No. 6571—Insect Spray Chart

The Hanson Equipment Co. has available, without charge, a file folder containing an identification insect spray chart. It contains up-to-date information on how to spray and what chemicals can be used to protect fields from crop-damaging insects, according to company officials. Common insects are listed along with illustrative color drawings. To secure the file folder check No. 6571 on the coupon and mail it to Croplife.

No. 5693—Separator Catalog

A new 22-page catalog describing vibrating screen separators, called by the trade name, Sweco, has been issued by the Southwestern Engineering Co. The equipment is used for the screening of many types of dry materials, including some used in grain and feed processing, and the chemical industry. The catalog is well-illustrated and is in two colors. Operational details are provided. Check No. 5693 on the coupon to secure the catalog.

No. 6572—Natural Mineral Products

The Minerals & Chemicals Corporation of America has published a technical information folder No. 1004 entitled, "Natural Mineral Products." The folder provides complete details of the company's range of products, including a carrier and diluent for formulating granular pesticides, fungicides, herbicides and soil fumigants and other products used as carriers, diluents, extenders and conditioners in farm chemicals. Secure the folder by checking No. 6572 on the coupon and mailing it to Croplife.

No. 6577—Fertilizer Equipment Catalog

A new 24-page 2-color catalog showing its line of equipment for the fertilizer industry has been published by the Stedman Foundry & Machine Co., Inc. Included in the publication are front and rear view machinery illustrations, foundation plans and information concerning the company's granular fertilizer process, four lines of batch mixers, continuous ammoniators, all-steel mixing units, tailings mills—both hammer and double cage types—and vibrating screens—single and multiple deck units. New machines not shown in any other company literature are included in this catalog No. 515. For a copy check No. 6577 on the coupon and mail it to Croplife.

No. 5688—Contract Blending

A brochure entitled, "Contract Blending to Meet Your Requirements," has been prepared by the Dearborn Chemical Co. The brochure states that the facilities of the firm's new, push-button control plant are available to manufacturers of compounded chemicals. Materials can be produced, packaged, labeled and shipped in accordance with desired requirements. The brochure lists these advantages: Automatic bulk chemical receiving and storage facilities; automatic weighing and blending equipment; volume chemical purchase prices; volume freight rates; low container costs; reduction of local inventory and delivery expense; low "per unit" finished product cost; excellent shipping connections; and personalized service. Check No. 5688 on the coupon and mail it to this publication to receive the brochure.

No. 6568—Municipal Insect Control

Literature pertinent to municipal insect control has been published by the Velsicol Chemical Corp., in a brochure called, "Here's What Chlordane Insecticides Can Do For Your City." The contents include technical bulletins dealing with a wide variety of insect pests, insect habits, insecticide dosages, and other aspects of successful municipal insect control. The subject is treated in considerable detail. The brochure is said to be useful both as a reference volume and a source of information and subject matter for those who plan and conduct meetings on community health problems. It also will serve as a guide in establishing standards for control methods and purchasing specifications which involve the amounts and quality of insecticides that should be used in a municipal insect control program. A copy can be obtained by checking No. 6568 on the coupon and mailing it to Croplife.

No. 6574—Power Sprayer

A new 3-gal. per minute "Mighty-Mite" power sprayer has been introduced by the F. E. Myers & Bro. Co. The sprayer is said to provide the benefits of boom spraying with up to a 21-ft. swath. Rough ground has little effect on the spray pattern of the sprayer, resulting in a uniform spray coverage, company officials said. The sprayer weighs approximately 40 lb. It is designed for 30 to 60 lb. operating pressure although the pump itself is capable of producing 300 lb. maximum pressure. Secure complete details by checking No. 6574 on the coupon and mailing it.

No. 6573—Company Booklet

The American Chemical Paint Co. has published the charter issue of the "ACP Pioneer," a 24-page booklet devoted to information about the company and its products. A chapter, with a number of pictures and illustrations, is devoted to the agricultural chemicals division. Described are research and development facilities, synthetic plant growth regulators, weed control products and the company's research farm. The booklet may be secured by checking No. 6573 on the coupon and mailing it to Croplife.

No. 6570—Repellent Base

The Montrose Chemical Co. announces it is now offering the new insect repellent material, Diethyl Toluamide, which was developed by the U.S. Department of Agriculture. Diethyl Toluamide (DET) is described as an all-purpose insect repellent and it has been released for commercial use. DET can be applied directly to the skin or clothing and protects the user against mosquitoes, ticks, chiggers, fleas and biting flies for up to eight hours, it is claimed. Montrose is offering a high concentration meta isomer of Diethyl Toluamide to formulators of insect repellent lotions and similar preparations. Secure complete details by checking No. 6570 on the coupon and mailing it to Croplife.

LAND TRANSFER PROPOSED

WASHINGTON — Administrative transfer of 1,953,853 acres of acquired lands in Montana from the U.S. Department of Agriculture to the U.S. Department of the Interior is being proposed to eliminate duplication and simplify conservation and land improvement programs. The lands recommended for transfer comprise Land Utilization Projects in 10 eastern Montana counties.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Pesticide supplies for the 1957 season are ample for normal demands, according to the 1956-57 "Pesticide Situation" prepared by Dr. Harold H. Shepard, Food and Requirements Division of USDA, Washington, D.C. Production last year was larger than ever before, and domestic disappearance of materials rose considerably over the previous year. The total dollar value of pesticide exports was also up. Producers' over-all stocks at the end of the 1955-56 crop year were higher than they were a year earlier, the report said.

Nitric acid production in the U.S. showed a gain of 126,500 tons in 1956 over the previous year, it was announced by the U.S. Department of Commerce. The U.S. annual capacity on Jan. 1, 1956 for production of nitric acid comprised 3,019,000 tons in commercial facilities and 2,263,000 tons in government (primarily ordnance) facilities. The total of these capacities represented an expansion of 77% over the facilities in existence on Jan. 1, 1951.

Spokesmen for the USDA, the Food and Drug Administration and the National Apple Institute declared that the use of modern pesticidal chemicals is much less hazardous than was the application of older toxicants before laws were brought into effect. Spokesmen representing the organizations were Dr. E. F. Knipling, USDA entomologist; George P. Larrick, commissioner of Food and Drug Administration; and Truman Nold, executive secretary of the National Apple Institute, all of Washington, D.C.

Special stress on better selling methods was emphasized at the Virginia Beach, Va. meeting of the Carolinas-Virginia Pesticide Formulators Assn. May 13-15. A panel of industry people discussed development of new markets to counteract reductions in cotton and tobacco acreages; consignment selling, guaranteed sales policies, quantity discounts and abnormally high sales costs.

Appropriations for the soil bank's acreage reserve phase were killed for the next fiscal year by the House of Representatives, but the fund for the conservation phase of the program was left intact. Ezra Taft Benson, Secretary of Agriculture, opposed the cut, stating that the soil bank had not yet had a chance to prove its worth.

The number one cotton producing county of the U.S. was Kern County, California, which in 1956 accounted for 516,578 running bales, according to the U.S. Bureau of Census report. Of the 50 leading counties named in the report, 20 were in Texas, eight in Arkansas, seven in Mississippi, six in California, four in Missouri, three in Arizona and two in New Mexico.

Three government agencies joined in a public statement to endorse the safety of methods established for conducting the cooperative state-federal gypsy-moth program in the Northeast. Purpose for the statement was to calm down excited residents in some of the affected areas who feared that the spray might bring illness and death to human beings, fish and wildlife.

A determined campaign to battle the imported fire ant was prepared by eleven Southern states now affected by this destructive pest. The Federal government was requested to contribute $12,000,000 annually for its part in a Federal-state cooperative program which would be continued until the ant is eliminated.

International Minerals & Chemical Corp. announced that it would start sinking a shaft for a new potash mine in the Canadian province of Saskatchewan. The new mine, which will operate at a depth of some 3,000 feet, will be situated on 450,000 acres about 150 miles east of Regina, Sask.

Northwest Nitro Chemicals, Ltd., Medicine Hat, Alberta, Canada, announced plans for a $150,000 addition to its plant. The new unit will permit production of four new phosphate-nitrogen fertilizer formulations, according to T. L. Brook, president.

The planting of substitute crops by signers of soil bank contracts was seen by Washington observers as being the basis of added income for such farmers. This in turn was regarded as offering a potential market for plant food and pesticides.

The National Plant Food Institute, Washington, D.C., took initial steps to show how the use of fertilizer for the establishment of turf and shrubbery along the nation's new 41,000 mile highway system, would be an asset. Estimates of how much fertilizer would be required for such a program ranged from 250,000 tons to 400,000 tons. An additional 125,000 tons a year would be needed for maintenance, it was estimated.

Ezra Taft Benson, secretary of agriculture, in a letter to Sen. Allen J. Ellender (D., La.), chairman of the Senate committee on agriculture, said that the nation's farm support programs are not working. He told Sen. Ellender that surplus stocks are being reduced, but efforts must be made to see that "granaries and warehouses presently being emptied are not filled with price-depressing surpluses."

Pilot-type tests for screw-worm eradication in Florida began in a 2,000 square-mile area of that state. Basic techniques used successfully to wipe out the pest on the Caribbean island of Curacao in 1954, will be employed in the Florida tests. Male flies rendered sterile by radiation, reduce greatly the population of screw-worms over a period of time. This method is expected to bring results in Florida.

Construction of a $5 million chemical plant was to begin at Port Maitland, Ontario, Canada, the Electric Reduction Co. of Canada announced. Phosphoric acid will be produced by both electrochemical and wet processes.

Construction has begun on the new fertilizer-insecticide plant at Sunnyside, Washington, for Pacific Agro Co., Seattle. The new plant was expected to be completed in time to supply both dry and liquid insecticides to growers during the 1957 season.

Stauffer Chemical Co. installed a new unit to produce granular insecticides, at Omaha, Neb. Granular formulations of DDT, aldrin and heptachlor will be made at the plant.

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

It was early one Spring afternoon when a tall, middle-aged man came into the salesroom of Schoenfeld & McGillicuddy Farm Supply Store. He had a shock of thick black hair streaked with gray, a gray-black mustache and a rather dapper look about him.

Oscar was alone, because Tillie Mason, the ulcerish-inclined bookkeeper, had gone to the bank and Pat McGillicuddy was out in the field. Oscar did not know how the newcomer looked, because he had not even looked up from his desk where he was busy figuring discounts.

The man looked at the big 8-ball on Oscar's desk, saw the sign on the wall, "Silence is Golden," and then he coughed. He was used to such subterfuges.

Oscar swung around in his swivel chair and cast a glacial look at the dapper man, "Well?" he asked. "What is it?"

"Ah," said the man softly. "I am very glad that I found you alone. Now I can talk to you about a matter which is close to your heart."

"My heart?" echoed Oscar with a frown. "There is nothing close to my heart except my undershirt."

"I don't mean that," purred the salesman. "I mean—I mean that lack of hair on your head, Mr. Schoenfeld. No offense, of course. We men don't beat around the bush like women, using cat claws. We come right to the point, don't we?"

Oscar clapped his hand to his bald head. "What's the matter with my bald head?" he asked. "I have had it for a long time, ach, I can not remember how long."

"That's just it," the salesman said sadly, "but you don't have to be bald. That's what I've come to tell you. Look!"

With a quick motion of his right hand, he grabbed for his thick gray and black hair, fumbled with it for a moment. Then his hand came away with a lot of hair, strangely in order, and Oscar found himself gazing at a bald pate even balder than his own.

"See how different I look?" grinned the salesman. "Oh, I was sad and discouraged, just like you about your bald head, until I was approached by a salesman who sold me one of these wonderful toupees. I got so interested I started selling them. Mr. Schoenfeld, I have made inquiries about you. I make inquiries about all bald headed men prospects. You are well heeled. You can afford this toupee. It will do so much for you. All I have to do it measure your head—you have—now lemme see—the broad head with the low brow—maybe about $175 will cover the cost."

"$175—for that!" Oscar pointed at the toupee automatically, his frugal soul shivered at the terrific cost of that hank of hair. Then he became angry. "Get out!" he thundered. "I don't want a toupee."

The salesman smiled. "They all resist at first," said the salesman. "Just think about it, Mr. Schoenfeld. A wig would turn many eyes your way, maybe women, too."

"Women," snorted Oscar. "I got one. Ach, and she is expensive sometimes. Get out."

"It would look wonderful on your head," said the salesman coaxingly. "It would make you look more dignified."

"Ach, it ain't what I got on top of my head that counts!" Oscar snorted. "It's what I got inside. And I got enough inside to tell me not to waste $175 for something to put on top my head. Such foolishness!"

The salesman began to lose his patience. "Well, have you no pride? Don't you want people to want to look at you and admire you?"

"The only people I want to look at me are the people who owe us money for fertilizer!" Oscar cried angrily. "Then they will be ashamed when they think they owe us money."

"But when you wear a wig like this it makes you even younger to yourself," offered the salesman. "You look at yourself in the mirror in the morning and see how young you look wearing a wig and you feel like going out and doing more work."

"I do too much work around here now," Oscar snapped. "Ach, I am trying to make others work more."

"A wig helps you save time," the salesman persisted. "You can wear it night and day. Just a couple of brushes and combs in the morning and you are set for the day. You don't waste time standing in front of a mirror for a half hour trying to cover your bald spot."

Oscar sneered. "I save time and money now over them bushy haired fellows that have their hair cut every week. I only get mine cut once a month. And sometimes Minnie even snips the ends and I don't have to see a barber for another two weeks."

"But think of your customers," said the salesman, becoming desperate. "Who wants to look at a store owner or clerk who is bald? If they have someone with nice hair to wait on them, they will buy more."

"They will not!" came back Oscar hotly. "Ach, you know nottin' about customers. If they see me wear an expensive wig, they will think Oscar and Pat make so much profits we can buy expensive wigs, then we must be chargin' them too much for fertilizer."

The salesman sighed. "We have some bargains in wigs," he said. "Some that we bought from widows. We can sell them for half price—maybe $75."

Oscar waved his hand irritably. "Go home," he said.

The salesman started toward the door, then turned. "We've got some that were in a warehouse in a barrel and got singed a little and smell smoky. They go for $25 each, as is, regardless of size."

"No, I wouldn't take one if you gave me one. Ach, such foolishness."

Dazedly the salesman slapped his own toupee on his head, then walked outdoors. The cool Spring wind whipped about him, and he breathed deeply. "I can't let it get me down," he said. "He's the first guy I ever lost on that fire singed price. But, I suppose there is always a first time. Gee, what a tough nut. I wonder what makes him tick?"

Another Croplife Service to the Dealer:
Clip Out This List of Names for Immediate Reference

POISON CONTROL CENTERS NEAR YOU

Below are listed poison information centers now in operation, along with the names of their directors and where they may be reached on an emergency basis, day or night.

Experts at these centers have been thoroughly trained in the toxicology of pesticides and are prepared to give accurate information on the course of action to be taken if local physician should be unavailable or unacquainted with antidote for specific pesticide.

Keep This List Handy Near Your Telephone!

ARIZONA

Phoenix, Maricopa County Medical Society, 2025 N. Central Avenue, Paul B. Jarrett, M.D., AL 8-8331

CALIFORNIA

San Francisco 8, Joseph Kaufman, M.D., 28 Geary Street, EX 2-5144

COLORADO

Denver, Denver General Hospital, West 6th Avenue & Cherokee Street, David N. Cook, M.D., TA 5-1331

WASHINGTON

Seattle, Child Health Center, University of Washington, Robert W. Deisher, M.D.
Seattle, Children's Orthopedic Hospital, Dr. Rozgay
Wenatchee, U.S. Public Health Service, Griffith E. Quinby, M.D., Normandy 2-5506 (office) Normandy 3-3181 (home).

Cooperative Plans Nitrogen Plant

SACRAMENTO, CAL.—Carl H. Haas of Modesto has been named president of Valley Nitrogen Producers, Inc., a grower owned cooperative formed to manufacture nitrogen fertilizer at cost for members. Other officers elected were Roland F. Hill, vice president, and Victor I. Sandell, secretary-treasurer, both of Fresno. Directors besides the officers are Mal Carberry and Jack Harris, Fresno; Sam Hamburg, Los Banos, and Sherman Thomas, Madera.

Mr. Haas said a plant to produce about 35,000 tons of NH_3 annually is planned. San Joaquin County farmers will be asked to subscribe for a $5,000,000 stock issue to finance the project.

NEBRASKA BULLETIN

LINCOLN, NEB.—A new bulletin entitled "Fertilizer Experiments on Native Subirrigated Meadows in Nebraska—1956" has been published by the Nebraska Agricultural Experiment Station.

CLOVIS, N.M., DEALER

(Continued from page 9)

might take away the profit the fertilizer would make."

Through experimentation and association with the county agent, Mr. Groom has learned that 80 lb. of anhydrous ammonia and 200 lb. of 40% phosphorus make a profitable combination.

"Maybe a little more would pay off even better," Mr. Groom says. "Our yield records show this amount will make a nice profit, so we gradually try to increase the application until we reach the optimum poundage."

In spreading the fertilizer, Mr. Groom uses a special meter and pump. It is much more accurate, because the customary regulator will vary the output according to the temperature and speed of the tractor. With the meter and pump every row receives the same amount of fertilizer.

Another thing that pays off, he has found, is to first check the moisture condition of the soil and the type of tilth. He insists that conditions be just right, because if the soil is too dry the farmer won't get the heavy yield expected.

To reduce overhead and keep the machines going, Mr. Groom has a special shop for the tractors and has one man in charge of them and the meters. The drivers are experienced and trained to do a careful, workmanlike job. They can cover 60 acres a day with the four-row tractors, but usually get from 35 to 40 acres a day. By going slower they can do a better job.

One thing Sacra Bros. will not do and that is sell on price alone. Mr. Groom says his company is entitled to a legitimate profit and if someone else wants to sell fertilizer cheaper he gets the job.

Usually, however, they keep the same customers every year and are adding new ones constantly, because Mr. Groom insists that service is the company's major purpose and that profits will come as a result.

"One thing I've learned in this business," Mr. Groom says, "is that the farmer must make a profit with fertilizer or he won't come back to us. So we are just as interested in his making a bumper crop as he is. It means money for us both."

Usually he tries to do business for cash, but sometimes credit must be given. However, the company charges 2% more interest than most lending agencies, and this keeps down time payments to a minimum.

The company is on friendly terms with the banks and the Farmers Home Administration and by Mr. Grom's recommendation a farmer can often get credit from these firms. If the man is a poor credit risk, however, or a known deadbeat, he very tactfully turns down his application.

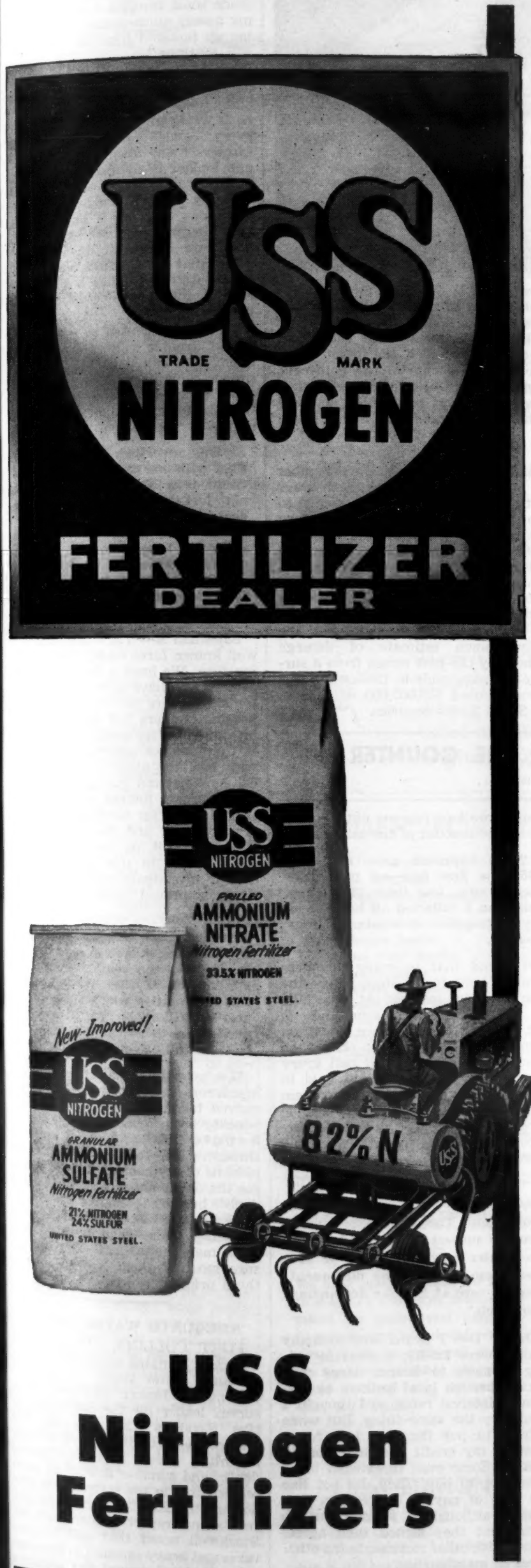
Thus far the fertilizer business has been profitable for the firm, with a promise of much bigger sales for 1957.

"We've been through the hard years now," Mr. Groom states, "and we've learned how to spread fertilizer and what it will do. And with knowledge and experience, I feel we can be of much greater service to our customers in the years ahead."

CLAYPAN FIELD DAY

BROOKINGS, S.D.—South Dakota State College Experiment Station personnel have scheduled a Claypan research field day at Plankinton, June 27. According to Burton Brage, associate experiment station agronomist, the program will feature clay pan soils types, problem soils and rotation studies—particularly their effect on small grain crops. Other demonstration will show the effects of nitrogen fertilizer, mineral fertilizer and possible sub-soiling effects.

A new sign that's backed by



9 BIG SALES BOOSTERS!

Dealers in nine Western states are discovering that a USS NITROGEN FERTILIZER sign means big sales of USS Ammonium Nitrate, USS Ammonium Sulfate and USS Anhydrous Ammonia.

HERE'S WHY THEY'RE BUYING

Sales of these three high-grade nitrogen fertilizers are big for nine good reasons.

USS NITROGEN FERTILIZERS are:

1. **Advertised in state farm papers**
2. **Advertised over local radio stations**
3. **Advertised on TV**
4. **Advertised in local newspapers**
5. **Promoted through farm literature**
6. **Backed with expert agronomic service**
7. **Promoted through direct mail**
8. **Promoted through point-of-sales material**
9. **Promoted through demonstration plots**

This nine-point program can mean big sales of USS FERTILIZER for you, too. Find out how *you* can become a USS NITROGEN FERTILIZER DEALER. Send in the handy coupon, today. There's no obligation.

USS Nitrogen Fertilizers

CLIP AND MAIL

Agricultural Extension
United States Steel
919 Kearns Building
Salt Lake City, Utah

Please send me free information on how I can become a USS NITROGEN FERTILIZER DEALER.

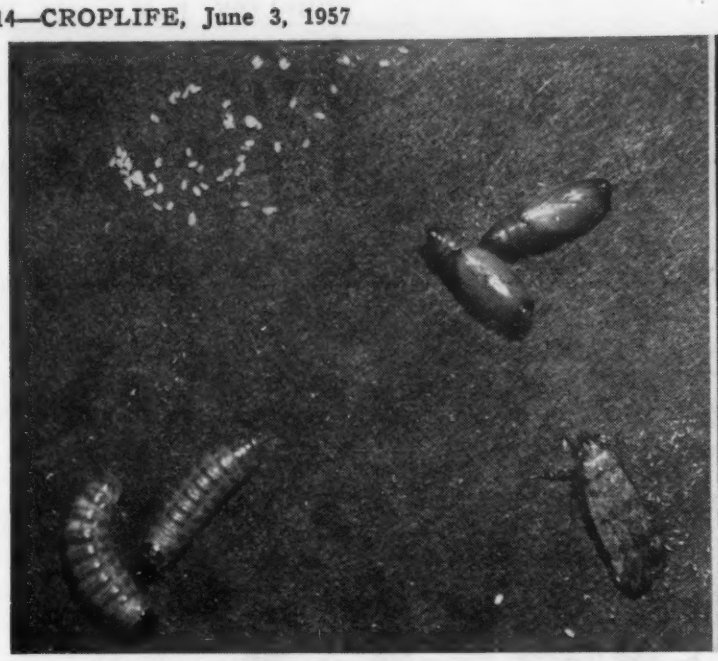
Name .....

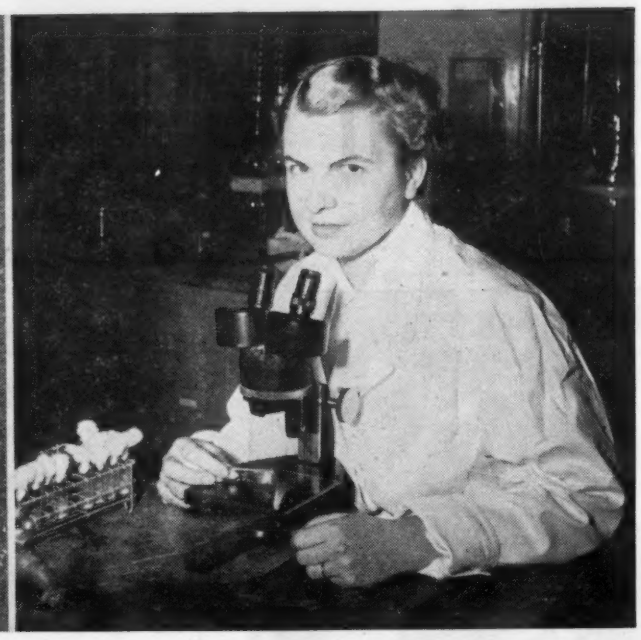
Company .....

Street .....

City ..... **State** .....

UNITED STATES STEEL





ALL ABOUT BOLLWORMS—Taking a photo like the one above, showing all four stages in the life of the pink bollworm at once, would have been all but impossible under field conditions where the various stages do not overlap. In nature, the pest's egg must be laid on the cotton, but Dr. Erma Vanderzant (at right), USDA researcher at Texas A&M college, has found ways to rear succeeding generations of the insect on a completely sterile diet. At the top left corner are eggs of the pink bollworm; at bottom left is the pink bollworm itself; at top right are the pupae, and at lower right is the adult moth. At the right is Dr. Vanderzant, said to be the first person to rear succeeding generations of pink bollworms on a sterile diet. Her method makes it possible to rear succeeding generations of the insect on known diet, and to determine the complete nutritional requirements of the bollworm. This food is provided chemically. Objective of the work is of course to find a specific toxicant to stop the depredations of this multi-million-dollar pest in the cotton growing area of the U.S.

Laboratory Method Helps to Determine Pink Bollworm's Food Need in All Stages

COLLEGE STATION, TEXAS—Important steps toward eventual development of a specific pesticidal control for the pink bollworm are being made at Texas A&M College here. The unique research on finding what nutritional elements are necessary to sustain the pink bollworm is being conducted by Dr. Erma Vanderzant, a USDA researcher attached to the college's department of biochemistry and nutrition.

Significantly enough, Dr. Vanderzant was the first person to succeed in rearing several generations of pink bollworms on a completely sterile diet, and through this study to determine exactly the nutritional requirements of the pest. These have been found to include certain known chemicals indispensable to growth, and approximately ten amino acids without which the insect cannot survive.

This knowledge has enabled Dr. Vanderzant to exercise complete control over the insect's diet. There are some 44 different materials in the diet she feeds the creatures, all but two of which have nutritive value. These include amino acids, vitamins, sugar, salts, corn oil or linoleic acid, cholesterol, water, a stabilizer and agar to thicken the mixture. Only the agar and the stabilizer offer no nutritive value. The diet is sterile and the insects are reared in germ-free conditions.

Dr. Vanderzant says, "Now we can study each individual chemical part of the diet—its action, and its metabolic interactions with other components of the diet. Furthermore, the insect can be removed from the rearing container at any time during its development so that its biochemistry in a particular stage can be studied. This is difficult if not impossible under natural conditions. And, we can study the effect of different anti-metabolites," chemicals which interfere with the body's metabolism.

"We will start with some of the known anti-metabolites," she says. "We want to learn how insects—particularly pink bollworms—differ in a metabolic sense from other animals.

"When done, this should lead to the development of a specific anti-metabolite for pink bollworms." In other words, an insecticide which would hit only this pest, which Texas' Agriculture Commissioner John C. White has called ". . . the most serious threat ever to face cotton in the U.S.!"

The full significance of this research work can never be completely evaluated, even if it should end now. It has brought closer the day when scientists can rear experimental insects—of any kind—in sufficiently large numbers for thorough study without relying on natural food sources.

One advantage of this application is that work can continue on a year-round basis, rather than on a seasonal one which hinges on plant growth. Another would be that researchers could develop any necessary number of insects at the same growth stage with identical diet histories—or with diet histories which differ in known ways, for comparative study.

Economic value of the work with relation to the pink bollworm only is underscored by the knowledge that this pest has spread from Texas to surrounding states in recent years despite all attempts to contain it. The only known estimate of damage caused by the pest comes from a survey estimate made in 1952, when this insect caused $28,000,000 damage in 38 South Texas counties.

SHOP TALK — OVER THE COUNTER

(Continued from page 9)

bill of $900 to pay on a shipment from a supplier. I was faced with the necessity of going to my banker—or going out to collect on a personal basis. I had done very little personal calling on delinquents in the past. I relied on personal notes on customer statements, personal letters and phone calls.

"But I had heard from several dealers that there is no substitute for a personal call, so I decided to test it.

"I started out to call on my delinquent customers and within a day and a half had collected more than enough to pay for that $900 supplier bill.

"I decided then that I would go right down the line of delinquent accounts. I told every man I called on—in a nice way, of course—that I needed my money and could he help me out. Within four days I had collected $2,250, and it really amazed me. I'm sold now on these personal calls on delinquent accounts.

"Two of the men from whom I collected a total of $475 (and they had owed me this amount for six months, and had not once been into the store to buy) came into my establishment within two weeks and began buying for cash again. They weren't avoiding me anymore, since those old bills were paid up."

Dealer C—"Sometime ago I realized that my delinquent accounts were too high, and so I started out to collect them personally. But I ran into many farmers who did not have enough cash to pay them in full. So I told such farmers that if they would give me $20 down and then let me drop around in another month for another payment of like amount that this would be a satisfactory way to pay. I pointed out that for the farmer this would be easier for him to do than to wait to pay me until he had the entire amount of the bill paid.

"This approach gave me over $350 the first day—all part payments, none less than $20. Using this plan I collected all but $90 of my delinquent accounts in four months.

"I found that in many instances farmers came to the store before the month was up and paid me something on the account—and sometimes in full, before I had a chance to call on them again. I figured out that when farmers realized I would call every month until I got that bill paid in full, they didn't want me asking them for money that often and they made a real effort to pay the bill. So perhaps this psychology will work for other dealers.

"Farmers have pride. They don't want a collector coming around too often. The neighbors might start to suspect things. And yet, if the dealer only wants $20 or $30 each time he calls, no delinquent can get sore at him for demanding too much."

Dealer D—"I heard how so many dealers were having success in getting farmers to finance large purchases through local bankers at reasonable interest rates, so I thought I would try the same thing. But when I tried to put the idea into force, most of my credit customers began to kick. Some even threatened to go elsewhere to buy. They did not like the idea of paying interest on purchases, although I pointed out to them that they signed such agreements with other merchants for other types of merchandise.

"It seems to me that we dealers in this area have been acting as bankers for farmers for so long that they can't see any other type of arrangement.

"It is time for us to advertise or do something else to bring them around to our way of thinking. My effort had one direct benefit—it made some farmers realize I wanted my money quicker, and they are paying up faster. I hope that this trend will continue."

Dealer E—"The credit bureau of our county is one of the best in the state, and it issues an annual blue book which gives the credit rating of every resident of the county. All farmers know about this blue book, and I place it right on the wrapping counter for anyone to see. Thus when a farmer comes in and asks for credit, he knows that he is listed in that book. It makes him realize that I can check on his credit quickly, and I think that book scares some of the deadbeats away. They have a lot of respect for that blue book and its listings."

Dealer F—"I used to have quite a bit of trouble collecting my delinquent accounts until I put up some proper signs in my store. One of the signs which I use is 'We like to do business for cash—limited credit upon approved application.'

"This advertises to all my trade that with me the matter of good credit is a No. 1 business factor, not just an incidental one. If a dealer doesn't put a lot of emphasis upon good credit—through signs and otherwise—the customer can't be expected to think that credit is difficult to obtain here. Warn 'em—that's my policy. Then let them decide what to ask for."

Salesman A—"I'm a salesman for a well known farm supply manufacturing firm. We have a finance plan for dealers who have approved farm customers. We are not one bit anxious to become bankers but we were forced into this plan for several reasons. One is that dealers generally have been very hesitant about approaching local bankers and customers to institute a proper finance plan. Secondly, there is need for occasional financing of purchases, and the manufacturer needs to do it, or lose the business. As salesman in this area, it is my duty to investigate every farmer who wants approved credit in financing purchases.

"I find that farmers who reach the financing stage are always willing to give me complete financial statements. If they will give me this information why wouldn't they also be willing to give such information to the local dealer—if he had the initiative to ask for it?

"Perhaps the initiative of the manufacturers in financing sales to approved farmers through dealers will educate both farmers and dealers to handle this problem themselves through local bankers. I know that officials of my company would like to see that come about. And I have little doubt but what many other companies would like to get rid of these financing deals. Their main purpose is to manufacture and sell, and I'm sure most of them like to stick to these primary functions."

ADEQUATE WATER SUPPLY

FORT COLLINS, COL. — Most Colorado irrigated areas will have an adequate water supply in 1957, according to Homer Stockwell, snow survey leader for the Soil Conservation Service's Colorado and New Mexico district. Snow pack in many mountain areas is at near-record depth, and summer flow of all snow-fed streams in the state will be from normal to 125% of normal, he said. In his final report of the season, Mr. Stockwell noted that cold temperatures and heavy snowfall in the mountains in April caused the remaining snow pack to be from 125 to 150% of normal on May 1.

FARM SERVICE DATA

Extension Station Reports

Dr. Paul D. Christensen, extension conservationist at Utah State Agricultural College, says numerous fertilizer tests conducted by the college have shown that the need for fertilizer on grain depends on the previous crop grown, the amount of manure or commercial fertilizer applied recently, and the amount and management of irrigation water applied.

Tests indicate that if a farmer raises grain in rotation following alfalfa or other crops where he has applied large amounts of manure or fertilizer he will probably not obtain an increase in yield from commercial fertilizers, Dr. Christensen said. Also, no increase in yield usually can be expected from commercial fertilizer if the farmer has not managed his irrigation water properly or if he has a short supply of water, he said.

On the other hand, if the farmer has not used barnyard manure in recent years and has not been growing grain in rotation he probably will get an increase in grain yields by applying some form of nitrogen fertilizer.

"Use of nitrogen fertilizer or manure on grains will really pay off if a farmer will pay attention to two important factors," Dr. Christensen says. "First, grow a recommended grain variety. Second, keep the soil in the root zone of the plant moist throughout the growing season."

★

April applications of 2,4,5-T to big sagebrush have given 85% kills, according to research conducted by the experiment stations of the Max C. Fleischmann College of Agriculture, University of Nevada. These results were obtained on mature stands of sagebrush, when applied at a rate of one pound of 2,4,5-T per acre, says H. M. Kilpatrick, extension range conservationist.

Since climatic conditions vary from year to year, the best way to determine time of spraying is by watching the growth of certain indicator plants. One of these indicator plants is Poa secunda, commonly known as Sandberg bluegrass. Best results with 2,4,5-T were obtained when the leaves of Sandberg bluegrass were between one and two inches long.

Morning frosts on the big sagebrush may have increased absorption of herbicides into the plant. This indicates that spraying need not be delayed because of the presence of frost on the plants.

The best kill with 2,4,5-T occurred in May. Better kills were obtained in June with 2,4-D than with 2,4,5-T. Dosages of 2 lb. of 2,4-D to the acre were used. Eighty percent kills were averaged with 2,4,5-T in April and May, and with 2,4-D from May and June sprayings, on mature stands.

During the May sprayings, Sandberg bluegrass heads were emerging, and the June sprayings were made when the leaves of the grass were beginning to lose their green color. Good results cannot be expected after the leaves have lost their green color.

Young sagebrush that is invading stands of crested wheatgrass can be controlled effectively with these herbicides. Both herbicides were effective at the above rates; 2,4,5-T gave a 100% kill and 2,4-D gave a 98% kill in May sprayings. Again, the heads of Sandberg bluegrass were just emerging.

★

More Oregon wheat farmers are now using nitrogen fertilizers in a more consistent fashion than they did five years ago, a study made by Henry Stippler, U.S. Department of Agriculture agricultural economist at Oregon State College, reveals.

Since 1950, 90% of the Columbia Basin summerfallow wheat farmers have applied nitrogen fertilizers. About 61% employ a gas form of fertilizer; 28% a dry type and 11% some liquid fertilizer preparation, according to the study.

Small-acreage farmers in eastern Oregon launched the use of nitrogen fertilizers in 1949 and 1950. Now a majority of them use nitrogen in one of several forms to fertilize their farms. Some, as Mr. Stippler points out, limit their applications to that part of their wheat acreage they think will boost yields, most especially if they are just "trying" fertilizers.

★

New research results give a glimpse into the future of Wyoming sugarbeet farmers —a future free of hand labor. Chemical weed control done judiciously and machine thinning and cultivation properly timed may eliminate hand labor, say Wyoming University agricultural researchers.

They report that the chemical DCU, correctly used for pre-emergence control, will kill four fifths of the grassy weeds and one third of the broad-leaved weeds without reducing beet yields. They recommend 10 lb. DCU per acre mixed into the soil before planting beets or 20 lb. per acre applied as a broadcast spray before beets are up. Band applications—treating a 6-inch strip directly over the beet row—will reduce the amount of chemical needed.

If weeds are troublesome after beets are up, they suggest using dalapon. That chemical, applied at the rate of 6 lb. of acid per acre when beets are in the 2- to 4-leaf stage, will control more than 95% of the seedling grasses and about one-half of the broad-leaved weeds. It causes no reduction in yield, researchers say.

★

Closer spacing of upland cotton on Verticillium wilt-infested land will result in less wilt damage and a greater yield per acre, says Gordon Hoff, extension agronomist at New Mexico A&M College.

Tests at the college's Agricultural Experiment Station and on cooperating farms in the Mesilla Valley show that stands averaging 3.5 to 4 plants per foot of row had 15% fewer wilt-infested plants and produced up to 70% more cotton per acre. Thick spacing did not affect turnout or maturity of the cotton.

Planting on high double beds and watering frequently with light irrigations will also help to reduce wilt damage, the agronomist says. Over-irrigating and running water over beds lower soil temperature and increase wilt.

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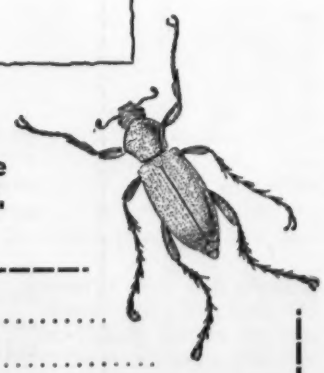

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HOW TO FIGURE YOUR SPRAYER OUTPUT

Pesticide recommendations always call for certain amounts of toxicant to be applied to the acre. Below is an easy way to calculate how much a certain applicator will need for accurate coverage. If the sprayer puts out 8 gal. water an acre and the recommendation calls for 0.2 lb. toxicant (¾ pt. 25% material) an acre, then 0.2 lb. toxicant should go into every 8 gal. water applied. If the tank holds 50 gal. water, it should contain 1.25 lb. toxicant (2.5 quarts 25% material). That is, 50 gal. divided by 8 gal. an acre, equals 6.25 acres. This 6.25 acres multiplied by 0.2 lb. an acre equals 1.25 lb. toxicant to 50 gal. spray.

Here's suggested procedure to check sprayer's output:

1. KEEP EQUIPMENT CLEAN

Clean all nozzle parts and make sure all hoses and connections are open. It's a good idea to buy new nozzles at the beginning of each season. Be sure tank is clean and free of any rust particles that can clog the nozzles.

2. MEASURE BOOM LENGTH

Measure the length of the boom in feet. For example here, let's say the boom is 20 feet long.

3. CALCULATE DISTANCE

Divide the length of the boom into 43,560 (the number of square feet in an acre) and get how many feet you will have to travel to cover one acre. So—with a 20-foot boom we will have to travel 2,178 feet to cover an acre.

4. ESTABLISH TRIAL COURSE

Measure off 2,178 ft. or a fraction of it if a shorter distance is more convenient. For example, take one sixth of it, 363 feet.

5. USE WATER FIRST

Fill spray tank full of water; be sure it's full or up to the line to which it is filled when in actual use.

6. MAKE TRIAL RUN

Set the sprayer exactly as if you were spraying in the field (30 to 40 pounds pressure) and travel (about 4 miles per hour) down the course measured in step 4. Spray water over the course just as insecticide would be sprayed in the field.

7. REFILL WITH TOXICANT

Measure carefully the number of gallons of water needed to fill the supply tank again. Say it requires 1½ gal. for the 363-ft. course. Since we only traveled one-sixth of the course, we have to multiply the 1½ gallons by 6 to get the number of gallons the sprayer will put out on one acre. In this case, that will be 9 gallons. For every 9 gallons of water this supply tank holds add the number of pounds or pints or quarts of chemical recommended per acre.

Naturally, accuracy depends upon all nozzles discharging the same quantity of liquid and in the same spray pattern. Check discharge from each nozzle once a season to be sure they are not worn out or stopped up.

Nozzles, nozzle screens, line strainers should be cleaned regularly. After about 10 hours of operation, these elements can be removed and soaked for several hours in a solvent such as kerosene. Sprayer tank should be kept free of rust and foreign material. Running clean water through the sprayer will help flush out foreign material.

Proper application of the recommended amount of the right material is the only sure way to control pests. Do the job right the first time.

—From "Insect Letter" by John Durkin, New Mexico A&M College

T. F. Flood

NEW HOUGH BOARD MEMBER—T. F. Flood, vice president of the Frank G. Hough Co., Libertyville, Ill., has been elected to the board of directors of the company, according to an announcement by G. A. Gilbertson, president. Mr. Flood has also been assigned additional responsibilities as vice president, sales and manufacturing. He was formerly in charge of production. Mr. Flood joined Hough in 1945 as a clerk, and was named vice president in 1954.

Miniature Farm Display Makes Hit at New Mexico Fair

ROSWELL, N.M.—An unusual display of a model farm in miniature was the feature attraction at the last Eastern New Mexico State Fair at Roswell. This was a part of the advertising display of the J. P. White Industries, a firm that handles concrete irrigation pipe, feeds and farm chemicals.

The company leased a small plot of land inside the fairgrounds, and then proceeded to set up a complete irrigation system with small underground pipe and irrigation water. They then transplanted live cotton and alfalfa plants to make the plots look just like tiny fields.

"It was quite a chore of work," said Charley Boreing, general manager of the firm, "but it really paid off in increased business. Hundreds of people came by every day to marvel at the miniature farm and ask questions. Some of them, I'm sure, gained a new conception of scientific farming, and we were able to put over several points on how crop rotations, insecticides and the proper use of fertilizer helped in making high crop yields."

Mr. Boreing found that selling irrigation pipe and farm chemicals goes hand in hand. When they install an irrigation system, they are often able to furnish the farm insecticides and fertilizer. And the customers who have been buying farm chemicals and feed from the company usually come to it whenever they are ready to install underground pipe.

"You might say we are giving complete farm service now," Mr. Boreing said, "and sell just about everything the farmer needs."

SWEET POTATO FERTILIZATION

HARTSVILLE, S. C.—Proper fertilization of sweet potatoes before and during planting will to a great extent determine the quality of the potatoes, farmers are being advised here by C. G. Newton, assistant county agent. Mr. Newton is advising application of one half of the fertilizer under the plants being set out, the other half as a side dressing after the plants first begin to take root. Insecticide in the transplant water is advised if wireworms are prevalent.

PHOSPHATE

(Continued from page 1)

Heavy mineral deposits are being studied at the same time.

The report listed the following reasons for investigating the phosphate deposits:

"There are, apparently, significant deposits of naturally occurring phosphates in Beaufort County which is within serviceable proximity of the Santee-Cooper Power Project and competitive private power producers.

"The electric furnace method is practical for processing phosphatic ores of medium grade, a fact which makes it particularly suitable to Beaufort County phosphates.

"Advantageous savings in freight owing to the proximity of ores to large blocks of electric power, as well as availability of inland waterway freighting to purchasers of phosphate for fertilizers are attractive features."

The company reported that tests conducted by the Colorado School of Mines Research Foundation, Golden, Col., indicated that beneficiation by flotation methods alone would not bring local ores up to the quality of competitive deposits. The report of the foundation, however, recommended that "deposits with limitations in grade obtainable by concentration should be investigated for possible use as feed, to electric furnace plants which treat lower grade phosphate ores."

Subsequently, Tennessee Valley Authority officials in charge of the electric furnace plant at Wilson Dam, Ala., reported that indications were that the ores could be economically handled by the electric furnace method.

Phosphate mining in this area is not new. Beginning in 1870 one company, the Coosaw Mining Co., dredged up 1,500,000 tons from river bottoms over a period of about 25 years. Loss of its lease, competition from other mining areas, and finally destruction of its processing plants by a storm killed the industry shortly after the turn of the century.

However, development of new processes—such as the electric furnace process—for treatment of lower grade ores, has aroused new interest in the Beaufort area deposits.

Field work centers around a self-propelled barge rigged for taking core samples and oberburden samples. Chemical analyses of samples are being made by various commercial laboratories.

Figures from that portion of the county covered by the survey to date show the following quantities and grades:

	Tons	Bone Phosphate of Lime	P_2O_5
Beaufort River ..	958,000	47.72	25.55
Morgan River ..	1,054,000	59.13	26.60
Coosaw River ..	2,540,000	59.51	25.14
Total	4,552,000		

Yet to be surveyed are the Bull and Wimbee River systems, already known to contain substantial deposits of phosphate, Broad River, known to contain phosphate, and all river systems westward of Broad River.

The State of South Carolina, which leased the tidelands to the Beaufort company, has encouraged such mining operations, Mr. Pollitzer said, with a two per cent royalty agreement.

AID TO EDUCATION

MIDLAND, MICH.—A new matching grant program of aid to higher education has been announced by the Dow Chemical Co. Effective July 1, Dow will match its employees' contributions to educational institutions up to $100 a year per employee. In addition, the company announced that it will make approximately $300,000 in other funds available to education for the 1957-58 academic year as part of its continuing aid-to-education program.

Quarantine Areas Expanded Against Soybean Nematode

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON, D.C.—To prevent further expansion of the soybean cyst nematode infestation, the pest control division of the U.S. Department of Agriculture last week moved to impose a quarantine in certain counties of Missouri, North Carolina and Tennessee.

The USDA presently has no plans for an eradication program against the nematode, although such a program would be possible through the use of presently available soil insecticides.

This announcement came last week as USDA decided to take action following the hearings held here on Jan. 31, 1957. However, the quarantine control order still will permit interested persons to make known their views in writing to the pest control division of USDA within 30 days after May 28, 1957.

Since the January public hearings, USDA pest control branch officials report that additional evidence of the presence of the soybean cyst nematode has been found in Arkansas and Kentucky, making necessary additional hearings for quarantine proposals in those states.

USDA officials say that in the four states in the Mississippi River area—Tennessee, Kentucky, Missouri and Arkansas, it is suspected that the nematode has been carried into those states by flood water since its presence has been isolated in land between levees and the immediate upland. However, this evidence has been obtained in these areas under none too favorable conditions for accurate determination and USDA officials now plan a more extensive study of these states and into the heart of the soybean belt later this summer when the growing crops will provide better conditions for study.

USDA authority in quarantine controls affects only inter-state movements but it is expected that the individual states involved will take cooperative action with the Federal Government to impose local quarantines within state borders.

Affected counties are named by USDA as follows: Missouri—Pemiscot and New Madrid Counties; North Carolina—New Hanover and Pender; Tennessee—Dyer, Lake, Lauderdale and Obion.

The quarantine technique to be used by USDA will involve ban on movement of articles which are suspected of being vehicles of transmission of the nematode. However, in such instances movement will be approved by USDA quarantine officials if certain safety practices are observed.

Materials involved in the quarantine ban on movement are stated as follows: live soybean cyst nematodes; soil, nursery stock, and other plants with roots attached; root crops, including bulbs; soybeans; small grains; hay; straw; fodder and plant litter of any kind; seed cotton; used farm tools and harvesting machinery; used construction and maintenance equipment; used sacks and other containers of farm products and machinery and vehicles which might spread the pest.

Exceptions are made for some of the foregoing prohibitions if specified precautions are followed. All efforts will be made to insure that the quarantine will be least troublesome or penalizing to farmers in the areas quarantined without impairing the goal of the USDA pest control branch to contain the infestation in the counties specified above.

The soybean cyst nematode campaign is somewhat different than the direct eradication attack followed by USDA in the instance of the Mediterranean fruit fly where eradication methods were primarily adopted along with a quarantine control.

USDA officials see no cause for hysterical alarm over the presence of this pest but they do not discount it as anything less than serious. They are moving in a manner best determined by past experiences in the field of pest control and will not hesitate to further more aggressive methods if such are found to be necessary. Their decision to expand the survey of adjoining territory to detect the nematode is evidence that all the periphery of the infested areas now determined will be explored to ascertain other possible sources of infestation. One theory is that the presence of the nematode in the four adjacent states may have resulted from flood borne pests. This in turn would indicate that they may have come from upstream sources.

Eradication methods which USDA says are effective are the use of soil fumigants. However, in some applications it is necessary to cover an infested area and treat the ground with the chemical, and it is doubtful that individual farmers will feel it their responsibility to undertake such extensive projects.

If and when an eradication technique is adopted in the present quarantine area it is likely that the federal government may undertake first a withdrawal of land from host crops—soybeans, root crops such as turnips, carrots and sweet potatoes. Experience in such land withdrawal from production in the past has required that the federal government make some form of compensation to the affected farmer as has been the case of the golden nematode in the potato area of Long Island, N.Y.

From information gained from reliable USDA pest control officials, there is no cause for panicky alarm at this time.

Pesticide dealers in the infested counties of the states involved in the current quarantine may win friends and favor if they cite the gravity of the problem to individual farmers and stimulate individual action which will be without out-of-pocket expense to those farmers through the temporary abandonment of the host crops of soybean and other suspected root crops for the cultivation of substitute crops.

This kind of advice may be a money-maker to many pesticidal chemical dealers.

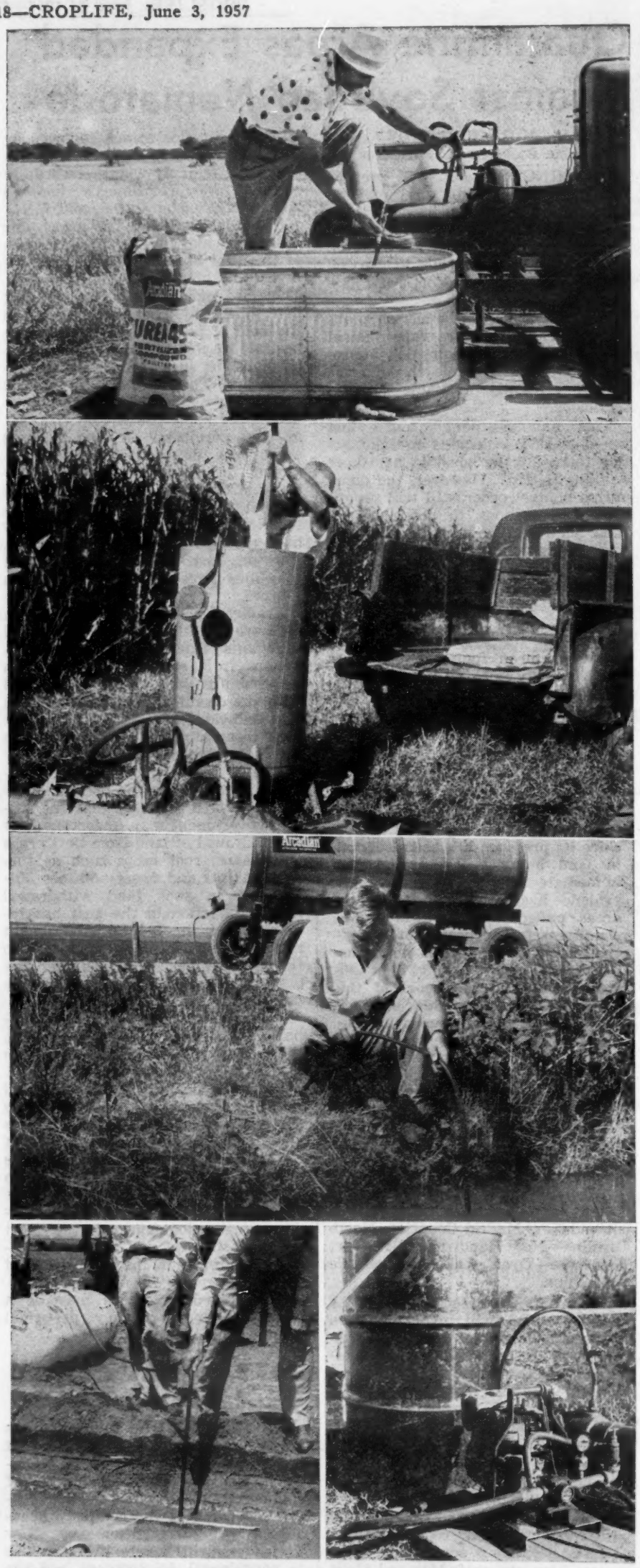
John B. Clopton Joins Escambia Chemical

NEW YORK—John B. Clopton has joined Escambia Chemical Corp., it has been announced by A. N. Wohlwend, vice president and director of commercial development. Mr. Clopton is located at the company headquarters at 261 Madison Ave., New York, and will devote his activities to commercial development and the sales of ammonia products and methanol.

He was formerly with the plastics division of Monsanto Chemical Co. at Texas City, Texas, where he was sales manager for monomers and raw materials. Mr. Clopton is a graduate of Alabama Polytechnic Institute of Auburn, Ala., where he obtained his B.S. degree in Chemical Engineering in 1947.

$500,000 FIRE

DOS PALOS, CAL.—Fire recently destroyed the Servo Engineering Co. in South Dos Palos, owned by Floyd Perry. The firm operates crop dusting equipment. Mr. Perry and C. R. Vaughn, Merced county fire warden, estimated damage to the equipment at more than half a million dollars.



FERTILIZATION VIA IRRIGATION—Top photo: Two 80-lb. bags, dissolved in 100 gal. water gives a concentration of 0.6 lb. N a gallon of solution. To regulate concentration in irrigation line, a valve, metering disc, etc. is required. Cost for equipment is estimated at from $5 to $10. Second photo: Tank-like apparatus which uses the difference in pressure between two points in the sprinkler line to introduce solutions or solids into pipe. Water is removed from line at one point, circulated in tank, and returned to pipe with fertilizer in solution. This method works best with pressures of 15 to 20 lbs. or more. Third photo: A tank of nitrogen solution may be placed near the ditch. A valve adjusts rate of flow into ditch. This method may also be used with solid carriers. Plant response is reported to be rapid.

Bottom photo (left): Anhydrous ammonia may be applied to ditch water. Tank is placed beside ditch, valve is adjusted to rate of flow desired (not over 110 ppm, or 1 lb. ammonia to 1,000 gal. water flow). Distribution device consists of perforated pipe placed in ditch. Pressure of ammonia will maintain steady rate of flow. Right: If intake side of pump is not accessible, pump may be used to force solution into pipe against line pressure. Tap can be made through any sprinkler head tap. (Photos by Nitrogen Div., Allied Chemical & Dye Corp.)

TECHNIQUE DESCRIBED . . .

Nitrogen Applied Through Irrigation Water Produces Good Crop Yield Responses

By Dr. Harvey J. Stangel
Nitrogen Division, Allied Chemical & Dye Corp., New York

More and more questions being asked about the application of fertilizer through irrigation water indicate a heightening interest in the subject. Although this method has been used for many years in various parts of the country, there is still a considerable amount to be learned about certain aspects of the technique.

Irrigators in a number of western and midwestern states, for instance, have expressed satisfaction with this method of fertilizer application from the standpoints of both the quick response obtained on the part of growing plants, and the savings in labor and cost of application. They report that frequently too little fertilizer is applied before planting, and the only way to apply plant food subsequently is via the water when the plants show deficiency symptoms. Application of plant food at that time pays large dividends, the irrigators report.

Although refinements have been made and improvements noted, the utilization of irrigation waters for fertilizer application is not a new thing. As early as 1928 a machine to apply fertilizer in this way was built and used. The Prizer Brothers of California were granted a patent on their machine in July, 1932. Their patent provided that the concentration of fertilizer in the irrigation water should be kept low to achieve the best distribution.

When this applicator went on the market, people tried to achieve equivalent results by simply breaking fertilizer bags and throwing them into the ditch. This proved unsatisfactory because of inability to control the concentration and the distribution of fertilizer in the water. Emptying a bag of fertilizer in the ditch gave very high concentration for a short period and then low concentration for a long period of time. This resulted in extremely poor distribution of fertilizer in the field.

In applying fertilizer through an irrigation system the problem is to obtain good distribution over the field (horizontal) as well as proper distribution in the soil profile (vertical). To obtain excellent distribution over the field (horizontal) the fertilizer should be applied continuously over several hours. With sprinkler systems the application period may be reduced to about an hour. However, with a ditch system, fertilizer should be applied continuously for a period of three to four hours to assure good distribution.

Almost all of the roots of any plant are found in the upper twelve to eighteen inches of soil. Ideally, fertilizer should be applied so the bulk of it is found in this zone. To obtain proper distribution of fertilizer in the soil profile (vertical) the fertilizer is introduced into the system after some water has been applied. Fertilizer will be found in the proper zone if it is applied during the latter half of the watering period. Application of fertilizer in the water should be discontinued about one hour before the end of the watering period.

In a sprinkler system water and fertilizer distribution are excellent. For best results clear water should be applied for the first half of the watering period. The fertilizer should be added over a period of one hour or more. Too rapid injection of the fertilizer may result in poor distribution of the fertilizer or even some losses depending upon the material. The plant and the irrigation system should always be flushed with clear water for about an hour after the fertilizer is applied.

In a ditch, distribution of water as well as fertilizer is not always as good as it should be. There are still too many quarter or even half mile runs. Good distribution of water and therefore fertilizer, is just not possible with such long runs. Under such conditions there is a tendency to get more water at the head of the run than at the end. We overwater at one end and underwater at the other. This brings down the average number of bushels an acre.

The best distribution of fertilizer will result if the water is run for three or four hours, fertilizer applied in the water for three to four hours and then cut off an hour or two before the end of the watering period. By this method good distribution of the fertilizer will be obtained over the field even though the distribution of the water itself may not be good. If there is good distribution of water with runs of 800 to 1,000 feet or less, it should not be necessary to waste water by running it out the end of the row.

Frequently concern is expressed over the loss of fertilizer from the water as it is going down the ditches. Tests at the universities have shown that if 110 ppm of nitrogen is added to water, the concentration in the water is still 105 to 110 ppm at a distance of 800 to 1,000 feet down the row. There is no loss of fertilizer which is in solution simply from passing over the soil. Nitrogen or other fertilizer is lost to the soil only when the water itself goes into the soil. Many farmers have found that fertilizer is carried long distances by water when they found roadside ditches greening up beautifully from water and fertilizer going out the end of the rows.

Introduction of fertilizer into a sprinkler system is relatively simple. If the pump is easily accessible, one needs only to tap the intake side of the pipe, attach a hose and drop the hose into a tank of liquid fertilizer or into a tank in which urea has been dissolved. If the intake side of the pump is not easily accessible, some people have run a plastic hose from the pump to the surface when the pump was installed or pulled for repairs. (See illustration)

In addition to the methods of introducing fertilizer into irrigation systems as illustrated in the photos, solid fertilizers may be applied directly to the ditch water. A chain or auger feeder may be run very slowly so that about a cup of fertilizer is applied every few minutes. In this manner, a steady but low concentration of fertilizer in the irrigation water is assured. This method has become popular in the far western states.

Some operators have suggested that fertilizer could be dumped down the well casing. Unfortunately, it is very difficult to control accurately the rate of flow of fertilizer into the pump in this way. If a pipe were used to put the fertilizer solution close to the point from which the pump removes water, this would work satisfactorily. With this method fertilizer should be applied only after the pump has started and fertilizer application should be stopped before the pump is stopped. It is well

to remember that one may contaminate a well with this method and the water would not be suitable for use for animals or humans.

The average yield of several hundred participants in the irrigated section of the "reach for top yield corn" in Nebraska, was 125 bu. an acre. All of the top ten participants had yields greater than 160 bu. an acre. Yields such as these are not made without large quantities of fertilizer. Recommendations for 150 bu. corn may be as high as 200 to 250 lb. nitrogen an acre.

In our experience, applications of 150 lb. nitrogen an acre or more should not be made at one time. This is not because the soil will not hold the nitrogen. It will. But there will probably be an undesirable plant response. Part of the nitrogen should be plowed down with the phosphate and potash requirements. Up to 100 lb. nitrogen an acre may be applied in this manner as a fall or preplant application. The remainder of the nitrogen can then be sidedressed or applied in the irrigation water. Many people will object to the cost of the extra trip over the field for sidedressing, but there is no charge for application in the irrigation water.

The greatest need for plant food falls during July and August. It is also during this period when irrigation is most frequent. From mid-July to September the corn plant uses about ⅔ of all the plant food it requires. This is the reason that the application of fertilizer in irrigation water is successful. Potatoes and other crops show somewhat the same growth requirement. During the first seven weeks of growth, potatoes require less than 10 lb. nitrogen, but in the following five weeks require eight times as much. Crops which can be sidedressed such as sugar beets and potatoes will be injured by the deep placement necessary for fertilizer at this stage. Foliage injury from sidedressing may also be quite extensive. Application in the water is the only feasible method at this time.

Many experienced irrigators are finding advantages to applying some plant food in the water each time they irrigate. They have found that greater yields result from several applications in the water rather than the same amount applied at one time before planting. A continuous supply of plant food favors the development of more than one ear on each corn plant. The large yields we hear about are produced on fertile soils with relatively large amounts of fertilizer —and an average of more than one ear per plant.

These are the methods for determining accurately the need for the plant for additional fertilizer. The tissue test, accurately run in the laboratory, is being successfully used in the western states. Truck gardeners are using this technique extensively. The most successful example of its use of field crops is probably sugar beets. By controlling the nitrogen level in the beet, both yield and sugar content can be kept high.

Nitrogen recommendations on sugar beets are usually made to allow the plant to run short of nitrogen about four weeks before harvest. The reason may be illustrated as follows:

High nitrogen during entire growing season produces high yield, but low sugar content. Low nitrogen during entire growing season produces low yield and high sugar content. High nitrogen, then low nitrogen added four weeks before harvest, produces both high yield and high sugar content.

Under the last conditions both the farmer and the sugar beet company are happy.

Thus, a program which would produce both a high yield without sacrificing high sugar content would include applying less nitrogen than the crop is expected to require before planting, and then checking the nitrate level in the beet petiole at two or three-week intervals during June, July, August and September. If the nitrate level is found to be falling too fast, nitrogen may be applied in the irrigation water as required. Phosphate and potash may also be added if considered necessary.

Since large amounts of phosphate and potash may be applied without undesirable effects on the plants, these nutrients should be applied before planting.

Table 1—Nitrogen Fertilizer Recommendations for Irrigated Corn

Last year's adjusted corn yield, bu.*	Lb. of nitrogen need for: 100 bu.	150 bu.	200 bu.
0	200	300	400
10	180	280	380
30	140	230	310
50	110	180	250
80	80	140	200
100	60	100	160

*A possible indication of inherent soil fertility. Obtained by dividing amount of fertilizer nitrogen used on corn the previous year by two, and subtracting from corn yield obtained that year. The result approximates the expected corn yield without nitrogen fertilizer. —From Department of Agronomy, University of Nebraska.

Table 2—Liquid Fertilizer Flow Chart

Gallons per hour wanted	Seconds to fill 4 oz. jar	Seconds to fill 8 oz. jar
½	225	..
1	112	..
2	56	..
3	38	76
4	28	56
5	22	44
6	18	36
7	16	32
8	14	28
9	12	24
10	11	22
12	..	18
14	..	16
16	..	14
18	..	12
20	..	11

—From Western Fertilizer Handbook, 1954.

★ ★

Florida Sales

TALLAHASSEE, FLA.—Florida fertilizer consumption during April totaled 180,313 tons, compared with 124,207 tons in April, 1956, according to the Florida Department of Agriculture. The April, 1957 total included 120,976 tons of mixed goods and 59,337 tons of materials.

Colorado Alfalfa Land Needs Phosphate

FORT COLLINS, COL.—Alfalfa removes from the soil the equivalent of 90 to 100 lb. of triple superphosphate per acre every year, according to studies conducted at the Colorado Agricultural Experiment Station.

As a result, much of the land in the state which is heavily cropped with alfalfa is low in available phosphate, Dr. W. R. Schmehl, station agronomist, reports.

He said that proper rate of phosphate application depends on soil properties and management practices, and ranges from 200 lb. of superphosphate per acre on light textured soils to about 400 lb. per acre on heavier soils.

When the phosphate level is low, proper application of the fertilizer may increase alfalfa yield as much as two tons per acre, Dr. Schmehl said. It also will increase the phosphate content of the hay and under some soil conditions will increase the protein content.

Dr. Schmehl is studying carryover effects of phosphate. Recent work indicates that relatively small rates of the fertilizer (100 to 125 lb. of superphosphate per acre) will leave residual effects two and three years after application. Rates of 400 to 500 lb. will carry over to the fifth year or more.

SEED TREATING MEASURE

SACRAMENTO — Goodwin J. Knight, governor, has approved a bill, AB1124 by William Hansen, assemblyman, Fresno, which requires more detailed labeling of seed which has been treated with materials poisonous to humans. Bags containing treated seed will henceforth have to show the name of the material and give a precautionary statement. The bill also authorizes the state director of agriculture to order permanent marking of bags containing poison-treated seed to prevent their use later for feeds.

John G. Kronseder

Elwood W. Phares

Velsicol Assigns New Positions in Company

CHICAGO — Velsicol Chemical Corp. has announced the appointments of two men to new assignments in the sales and development departments.

John G. Kronseder, formerly manager of chemical engineering for International Minerals & Chemical Corp., has been made assistant director of process development for Velsicol; and Elwood W. Phares has been named manager of marketing and commercial development. Mr. Phares had been conducting sales development work for the sales department since January last year.

Mr. Kronseder holds the degree of bachelor of science in chemical engineering from the Newark (N.J.) College of Engineering. He is presently a member of the American Management Assn., American Institute of Chemical Engineers and the American Chemical Society.

Mr. Phares holds the degree of master of business administration from the Harvard graduate school of business administration, and also a bachelor of industrial engineering degree from the Rensselaer Polytechnic Institute, Troy, N.Y.

Announcement of these appointments was made by Dr. Robert O. Sauer, vice president of research and development for Velsicol. The company manufactures technical chlordane, heptachlor and endrin insecticides as well as a number of industrial chemical products.

California Fertilizer Sales Show Decline In First Quarter

SAN FRANCISCO—Sales of commercial fertilizers in California dropped during the first quarter of this year by approximately 6% from the same period in 1956.

This is the first decline in sales registered in the industry in several years. The drop may be an indication of heavier fertilization in the fall than in the early spring.

During the two fall quarters sales rose from 188,204 tons in 1955 to 231,361 last year; during the period from Jan. 1 to March 31 the change was from 280,853 in 1956 to 264,270 this year.

The decline in sales was fairly consistent in all types of fertilizers, with little change in their relative positions on the scale. Mixed dry commercial fertilizers remained in topmost position, dropping from 61,494 tons to 58,246. Ammonium sulfate, in second place, dropped from 45,702 tons to 42,418. Ammonia solution 20-0-0 was down for the first three months of this year from 39,758 to 35,532.

Superphosphate normal attracted 19,035 tons in sales, as compared with 24,015. Ammonium phosphate-sulfate 16-20-0 registered one of the few gains, climbing from 16,736 to 17,373 tons. Other changes were shown by ammonium nitrate, down from 18,813 to 16,647; calcium nitrate, down from 15,938 to 14,187; anhydrous ammonia, from 12,904 to 11,823.

The two chemicals next in line showed gains: liquid mixed fertilizers moving from 8,117 tons to 11,298, and urea up from 7,108 to 8,342. Lesser changes were registered by a large number of other fertilizers.

In the dry mixed group, 17-7-0 pushed to first place by climbing from 5,178 tons to 8,008, displacing 10-10-10 holding almost steady at 6,220 and 6,621 tons. Other mixes in the group behaved irregularly. Dropping in sales between the two quarters were 10-10-5 from 5,218 to 4,316; 8-8-4 from 4,913 to 3,665; 6-10-4 from 2,572 to 1,822; 16-20-0 from 3,452 to 1,534, and several others.

Moving up were 15-8-4, from 1,866 to 2,034; 4-4-2, from less than 1,000 to 1,916, and others in small amounts.

Agricultural minerals showed a gain of about 7%. Total sales were up from 225,532 during the first three months of 1956 to 241,153 in the same period this year. Gypsum led the way by rising from 197,393 tons to 221,955. Sewage sludge accounted for almost half the remaining 19,000 tons with sales of 8,437, a drop from last year's 12,231.

Magnesium carbonate showed a large relative gain, though small in proportion to the total. Sales almost doubled between the two quarters, from 836 tons to 1,656.

Alabama Tonnage

MONTGOMERY, ALA.—March sales of fertilizers in Alabama amounted to 196,032 tons, down from 246,535 tons in March a year ago, according to the Alabama State Department of Agriculture and Industries. Sales for the six months ended in March totaled 392,396 tons, compared with 453,331 in the six months ended in March, 1956.

CERTIFIED SEED

MADRAS, ORE.—Some 5,000 acres of seed are expected to be certified in Jefferson County this year, according to Amos Bierly, county extension agent. This is a big increase from last year's approximate 3,300 acres of seed. Certifications for more than 2,500 acres of Merion blue are anticipated, Mr. Bierly said, for the biggest seed certification of the year. This is more than double last year's figure of 1,100 acres.

Gypsy Moth Spray Not a Threat to Bees, USDA Says

WASHINGTON—Extensive field tests in recent years have proved that DDT does little harm to honeybees in the concentration being used for the gypsy-moth spray program now under way in New York, New Jersey and Pennsylvania, according to the U.S. Department of Agriculture.

James I. Hambleton, U.S. bee research specialist and a national authority on bee culture, said beekeepers often become alarmed in advance of a spray program such as the gypsy-moth operation, but their fears in the past have proved groundless. In general, only bees in flight are actually exposed to the DDT spray and no insecticide is carried back to the hive and fed to the brood.

In 1954, research scientists at Cornell University conducted large-scale experiments during May, with follow-up work in June and July, to check effect of DDT gyspy-moth sprays on bees. These experiments demonstrated that little loss of bees could be attributed to DDT as a result of aerial spraying.

A conference was held at Cornell University, Ithaca, N.Y., in March of this year, before the current spray program began, to consider along with the many other aspects of such a program the recent research findings on possible toxic effects of DDT spray to honeybees.

Scientists present included Dr. Maurice C. Bond, director of the New York State Extension Service, Dr. Charles Palm, head of the Cornell University Department of Entomology, and Dr. E. J. Dyce, Cornell professor of apiculture. The conference agreed that the proposed DDT spraying against the gypsy moth constituted no serious threat to bees.

However, as an extra precaution, it was recommended that spray schedules be arranged so that orchard areas would not be sprayed while the fruit trees were in bloom. The current spray program has followed this recommendation.

The gypsy moth spray program is aimed at eradication of leafeating gypsy-moth caterpillars from almost 3 million acres, much of which is heavily forested land in New York state. The program calls for a single aerial application of 1 lb. of DDT dissolved in one gallon of light oil per acre. At this rate of dispersal, a plot of land measuring 50 feet on a side (2,500 sq. ft.) receives less than 1 oz. of DDT.

California Restricts Use Of Injurious Herbicides

SACRAMENTO — The California Department of Agriculture has banned the use of injurious herbicides within two miles of any cultivated commercial vineyard in the Lodi, San Joaquin County, area between March 15 and Oct. 15.

The decision resulted from testimony taken at a public hearing in Lodi to the effect that Tokay grape vines are particularly sensitive to weed killers during the prohibited period. Grain growers argued that without the use of weed killers the growing of grain was not profitable.

WEED CONTROL

BATON ROUGE—Sweetpotato growers can beat the labor shortage to some extent by using chemicals to control weeds and grasses, according to Dr. T. P. Hernandez and Wiley Poole of the Louisiana State University Experiment Station. Results of their experiments show that Chloro IPC and Alanap-2 are very effective against crabgrass and other weeds and grasses.

End of Drouth Seen in Wyoming

ROCK SPRINGS, WYO.—A federal and county official in western Wyoming expressed the belief recently that the five to seven-year drouth in the region "may be broken" as the result of April and May rains.

Ivan O. Vickers, supervisor of the Bureau of Land Management in Rock Springs, made the statement after 11 consecutive days of rain in the area and as a result of field inspections earlier of rangeland in Sweetwater, Uinta and Lincoln Counties in Wyoming.

These inspections, Mr. Vickers said, "indicate that the rain which has fallen during the months has helped produce a new growth of forage on the range. This is sufficient for all permitted livestock and wildlife use, and it is quite possible that the drouth may be broken."

this view was echoed by Warren Ferrell, Sweetwater County agent, who pointed out that the recent rainy spell was of a nature whereby the moisture could soak into the ground, rather than run off rapidly.

"Many acres of the county that have been barren for five years or more are now showing a good growth of browse," Mr. Ferrell said. "From a standpoint of greenness, the area is the greenest I've ever seen it since at least 1949."

Mr. Vickers said that many cattle operators in the area have voluntarily held their cattle off the range in recent weeks in order to allow a better new growth of forage.

ILLINOIS FARM EARNINGS

URBANA, ILL.—A farm record summary by the University of Illinois department of agricultural economics shows that Illinois farmers' 1956 earnings were the highest since 1951. A. G. Mueller, in charge of summarizing farm records, explains that record-high corn, soybean and wheat yields and improved cattle and hog prices were largely responsible for this increase.

Stauffer Names Director Of Richmond Laboratory

NEW YORK—Stauffer Chemical Co. has appointed Robert P. Obrecht as director of the Richmond, Cal., research laboratory. He will be in charge of all research and development activities at that location.

A graduate of the Colorado School of Mines in 1934 with a B.S. in metallurgical engineering, Mr. Obecht has spent more than 15 years in industrial chemical research and production. In 1950 he became a chemical engineer at Stauffer's Torrance, Cal., research laboratory, and in 1952 he was transferred to the Richmond laboratory and named assistant to the director of research.

WEED CONTROL FIELD DAY

STATE COLLEGE, MISS.—A weed control field day will be held here June 5, beginning at 9 a.m., according to W. R. Thompson, agronomist of the Agricultural Extension Service of Mississippi State College.

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and maintenance of pasture and range lands

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July 15, South
July 22, Midwest
July 29, West
August 5, Northeast

—here's why your ad will sell—→

INSECT, PLANT DISEASE NOTES

(Continued from page 5)

haking early applications of insecti-ides in an effort to kill the larva s it hatches out and before it pene-rates the stems of the potato plants.

Rains Encourage Pests in Oklahoma Grain Crops

STILLWATER, OKLA.—The de-luge of rain is developing another erious problem for state farmers—hat is, for those who have enough eft of their crops to worry about.

Oklahoma A&M extension ento-mologists now are watching an army-worm and cutworm attack originate n the southwest and south central arts of the state. The insects are eginning to move in on alfalfa and mall grains, according to Newton lora, A&M extension entomologist.

The pea aphid is also becoming a problem in alfalfa in all parts of the state except the northwest and Panhandle sections.

The spotted aphid population is remaining low in the crops at this time, Mr. Flora reports, but could become a serious problem providing weather conditions are favorable. A normal growing season perpetuates the spotted aphid problem, he said.

Damage From Pear Psylla Expected in Washington

PULLMAN, WASH.—Pear growers were warned that pear psylla looks more threatening than usual this year. Dr. H. S. Telford, chairman of Washington State College's department of entomology, says WSC's agricultural experiment station's scientists are finding the pest a more serious threat to pears this year than before. Reasons for this buildup, according to Dr. Telford, may be the cool weather which favors psylla build-up "and probably cuts the effectiveness of the insecticides we use. Also, it could be that the psylla is becoming resistant to certain phosphate insecticides we now use for its control," he added.

Kansas Reports Wide Activity of Insects

Variegated cutworms are now found in large numbers of alfalfa fields in Southeast Kansas. This cutworm can be found on a number of broadleafed plants such as dock, pepper grass, knotweed and wild lettuce but is not the armyworm that feeds on barley, oats, wheat and brome. The second cutting of alfalfa may be prevented from starting by these cutworms. There should be no residue problem in the bare fields where cutworms are preventing the alfalfa growth from starting.

Small armyworms can be found in cereal fields and brome grass in southeast Kansas counties. Little leaf feeding and no head cutting of barley has been observed but these fields should be watched very closely.

In central, east central and northeast Kansas, spotted alfalfa aphids have made little increase in population during the past week. Although winged adults are more prevalent than earlier, very little migration has taken place. Population counts in Riley, Marshall, Pottawatomie, Brown, Atchison, Leavenworth, Jackson, Jefferson and Wyandotte counties ranged from 1 to 75 aphids per 25 net sweeps. Somewhat higher counts were found along southern slopes of embankment areas. No spotted alfalfa aphids were found where survey was made in either Nemaha or Doniphan Counties. A few spotted alfalfa aphids were found this past week near Garden City, Finney County.

Pea aphids have not developed to populations that could cause damage to alfalfa in the state.

Grasshoppers continue to hatch and the nymphs are becoming more noticeable along field margins. Counts in Riley, Marshall, Pottawatomie, Brown, Nemaha, Doniphan, Atchison, Leavenworth, Wyandotte, Jefferson and Jackson Counties ranged from 1 to 7 per 25 sweeps.—David L. Matthew and Dell Gates.

EACH ISSUE A COMPLETE REPORT—DESIGNED TO BOOST FALL SALES!

Why These Special Emphasis Issues? . . .
Croplife's editors have long felt the need for placing extra emphasis on the marketing advantages and profit opportunities of fall fertilization and pasture and range maintenance. They sense the need for a campaign to increase fall application to help level-off consumer demand . . . to reduce the spring rush and subsequent shortage of materials. The immediate response to the initial issue on this subject published in July, 1956, proved the value of the issue.

The Need for Four Complete Issues . . .
Croplife's first Fall Fertilization coverage appeared in a Midwest Marketing Issue—which limited somewhat the scope of the contents. The success of the initial attempt pointed up the need for specialized coverage in each crop area—South, West, Midwest and Northeast. Four tailor-made issues will bring specialized information to each of these regions.

Editorial Content Paves the Way . . .
Editorial material is designed to be useful to *all* segments of the industry—manufacturers, distributors and retailers—in giving fall sales a big push this year. Much of the copy is planned for use in actual over-the-counter sales talks with farmers. Some may be adapted for bulletin board use. Other material can be utilized by dealers in local newspaper advertisements or direct mail campaigns. Plans call for a "question-and-answer" feature; state recommendations for fall fertilization and maintenance of pastures; articles by authorities on fertilization, weed and brush control, insect control and the economics involved. They all point toward the same goal: INCREASED FALL SALES!

Pinpoint Your Advertising Message . . .
This makes it possible—by picking appropriate issues—to key your message to *your* area of marketing interest—to your prospects. This close tie-in with editorial material will give your advertisements the greatest possible impact. It will deliver your sales messages to your prospects—*all* the way down the marketing line—at the right time . . . it will help them map out plans for increased fall sales of *your products*. Here's an opportunity for you to present your specific fall sales story . . . to point to the things you are doing—the sales-aids you offer—to help distributors and dealers sell.

Reader-Response Assured . . .
After reading the 1956 version of this new special emphasis series, many firms and individuals urged Croplife to make this an annual special emphasis project. Requests for extra copies of the July 23, 1956, Croplife came in at an unprecedented rate. Within two weeks, the entire supply of reserve copies had been exhausted . . . many requests could not be filled.

Make Your Plans Now . . .
Make plans now to take advantage of this outstanding fall fertilization series of special emphasis issues. Here's an unusual opportunity to tie-in your sales message with complete news and feature coverage of a timely and important subject. Contact the Croplife office nearest you for complete details and any service Croplife's sales representatives can offer.

HERE ARE THE CLOSING DATES

JULY 15, South Marketing Issue, CLOSES JULY 1
JULY 22, Midwest Marketing Issue, CLOSES JULY 8
JULY 29, West Marketing Issue, CLOSES JULY 15
AUGUST 5, Northeast Marketing Issue, CLOSES JULY 29

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John R. Scherm, AACCO Vice President, Dies

NEW YORK—John R. Scherm, vice president, American Agricultural Chemical Co., died suddenly at his home in Upper Montclair, N.J., May 20 following a heart attack. Mr. Scherm, 64, had been active in his position as manager of Agrico fertilizer sales until only a day previous to his death.

Mr. Scherm joined the American Agricultural Chemical Co. 23 years ago as assistant manager of the Buffalo office. Later he became manager of the Cleveland office, and in 1938 he was transferred to New York where he served as a district manager and assistant fertilizer sales manager. In 1942 he became general sales manager of the fertilizer division. Survivors include his widow, Mrs. Alice Scherm, 202 Inwood Ave., Upper Montclair, N.J., and a son, Tom Scherm.

Rain Damages Crops In Sacramento Area

SACRAMENTO — Late season rains damaged some crops in the Sacramento and San Joaquin valleys, and measures were being taken by some orchardists to prevent brown rot and mildew on almonds and peaches, blight on walnuts and scab on apples and pears.

Army and air national guard helicopters were pressed into service with commercial machines to blow water from cherry trees in the San Joaquin County area where the storm caught cherries near the picking stage. Strawberries in the same area also suffered severe damage.

Orchardists were hopeful that the combination of dry weather and quick spraying or sulfuring would save most tree crops.

Some severe damage to hay crops was reported and grain crops in the Delta area were knocked flat by winds. Growers gloomily predicted not only difficulty in harvesting but also loss of quality since the heads of lodged grain would not fill properly.

USDA ACCEPTS DIAZINON

ARDSLEY, N.Y.—Geigy Agricultural Chemicals has announced that its product, Diazinon, has been accepted by the U.S. Department of Agriculture for fly control in food processing plants. The label instructions call for use of 1 gal. active material in 25 gal. water, applied as a residual spray to walls and ceilings of food processing plants early in season before canning or other processing has begun.

Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Remind Farmers to Apply Pesticides Carefully

No matter how much research and manufacturing skill goes into a pesticidal product, the manner in which it is applied to the crop has a great deal to do with the results obtained. In view of this, it seems odd that many growers will blame the manufacturers, the dealer, the salesman, the weather or suspected resistance of the bugs for poor results, when frequently it may be just the method of application that needs investigating.

For instance, J. N. Roney, extension entomologist at Phoenix, Ariz. reports dissatisfaction on the part of some of the growers in his area over the results of insecticide use. But here is what Mr. Roney reports having noted: "One grower was seen spraying at noon with nozzles about 2 feet above the seedling plants. The tractor was traveling about 10 miles an hour."

In desert areas, he warns, "do not spray between 10 a.m. and 4 p.m. when the sun is shining. Always have the nozzles about 7 to 10 inches above the plants and do not drive over 5 miles an hour," he adds.

Beyond the need for applying pesticides at the correct speed and right distance from the plants to be protected, is the matter of having the equipment in good shape for accurate and dependable work.

John J. Durkin, extension entomologist at New Mexico A&M College urges growers in his state to clean all nozzle parts and to make sure all hoses and connections are open. He suggests that new nozzles should be purchased at the beginning of each season.

As part of the necessary maintenance for top performance of application equipment, he reminds that nozzles, nozzle screens, and line strainers should be cleaned at regular intervals. "About every ten hours of operation, these elements can be removed and soaked for several hours in a solvent such as kerosene. This will help to eliminate stoppages and shutdowns due to foreign material. Running clean water through the system will help flush out foreign material."

This is good advice for dealers who sell insecticides, to remind their farmer customers. The toxicants will do a good job if correctly applied. How they are put on is of increasing importance as insecticidal materials become more specific and potent. (A full page feature, "How to Figure Your Sprayer Output" appears on page 16, this issue. Dealers are invited to clip it and hang it on bulletin boards.)

Specific Facts Sought on Bollworm Food Needs

Will the work being done by USDA at Texas A&M College on determining the nutritional needs of the pink bollworm result eventually in discovery of a specific insecticide that will control this pest? There is considerable optimism that this may be the case.

Dr. Erma Vanderzant, a USDA researcher at Texas A&M has developed methods of rearing successive generations of boll weevil and of feeding them on a sterile diet so both the type of materials fed and the precise amounts are known. This makes it possible to determine what chemicals are indispensable to the insect's growth, and with this knowledge specific information may be gained about its over all metabolism.

Advantages of rearing bollworms in the laboratory under sterile conditions are obvious even to the layman. Field studies of the pest are both difficult and tedious, and it is not possible to make a comparative study of all stages of the insect at one time under natural out-of-door conditions. But in the laboratory under methods used by Dr. Vanderzant, living specimens of the pest from egg to adult may be studied simultaneously under sterile conditions which remove unknown and complicating factors.

These methods of experimentation will certainly spread beyond the present work with pink bollworm so that infinitely more may be learned about the metabolism of many other insect pests and methods to control them.

Pesticide industry people will be vitally interested observers as these tests continue and as others are initiated. Will these experiments lead to the specificity long desired by growers who have clamored for a "super" insecticide for control of this expensive pest of cotton?

The answer may come sooner than many think.

Now Is Time to Make Best Use of Fertilizer

"The importance of fertility in crop production programs is well established. Very few will dispute its importance or the contribution it makes in increasing crop yields. Witness to this fact is the increased use that Ontario farmers are making of mixed fertilizers and single ingredient materials. In the period July 1, 1955 to June 30, 1956 Ontario farmers purchased more than 375,000 tons of mixed fertilizer alone, an amount that represents more than one-half the fertilizer used in Canada.

"In addition to the mixed goods used more than 50,000 tons of fertilizer materials were purchased during the same period. This is big business and represents a sizeable recurring cost in the crop production program on Ontario farms. It is little wonder that farmers are continually seeking information whereby the fertilizer materials purchased can be used to the greatest profitable advantage. The need for using fertilizers to the most effective advantage was never more important than at the present time when we are confronted with high costs accompanied by low farm prices."—N. R. Richards, Dept. of Soils, Ontario Agricultural College, before recent convention of Ontario Soil and Crop Improvement Assn., Toronto.

Profit-Baiters Still Operating in Economy

Anti-profit propaganda bursts out anew. The AFL-CIO has become vociferous in blaming rising prices on high corporate profits. It has repeatedly called for congressional investigation of profits as the cause of inflation, and a leftist senator, supporting this "line," has arisen on his hind legs in the upper chamber to shout that higher prices are due to "enormous profits."

In any light, but specifically in the light of figures published by the U.S. Department of Commerce, these charges are ludicrous. From 1950 to 1956 compensation of employees in this country rose by $85 billion, while corporate profits before taxes increased by 3.4 billion and profits after taxes actually declined more than half a billion.

Railing against profits and profit-making has always been a popular pastime of demagogues, professional agitators and self-appointed social "remodelers." Profits have long served as a whipping boy for all our real or imagined economic ills—unemployment, rising prices, deterrents to economic progress, income inequality, etc.

Fortunately, tirades against profits are usually recognized for what they are—intentional or unintentional attempts to undermine free enterprise—and disregarded. But, unfortunately, they are sometimes accepted uncritically by the thoughtless or ignorant. Profit-baiters who, for whatever reason, disregard principle, logic and fact, do serious damage to free enterprise and future economic progress. They make control of inflation and deflation more difficult.

Croplife's Home Office

Croplife

BPA — *Member of Business Publications Audit*

NBP — *Member of National Business Publications*

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

June 11-15 — Western Plant Board, Denver, Col.

June 24-28 — Agricultural Dealers Workshop, Louisiana State University, Baton Rouge.

Sept. 4-6 — National Agricultural Chemicals Assn., Annual Meeting Essex & Sussex, Spring Lake, N. J., L. S. Hitchner, 1145 19th St. N.W., Washington 6, D. C., Executive Secretary.

EDITOR'S NOTE — The listings above are appearing in this column for the first time this week.

June 6-8—Manufacturing Chemists Assn., Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W.Va.

June 9-12—National Plant Food Institute, annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 17-19—Fifteenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Dinkler-Tutwiler Hotel, Birmingham, Ala., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.

June 18-20—Pilot Plant Demonstration of Developments in Fertilizer Technology, Tennessee Valley Authority, Wilson Dam Laboratories, Sheffield, Ala.

June 18-20 — Northeastern Branch, American Society of Agronomy, Summer Meeting, University of Massachusetts.

June 23-26—American Society of Agricultural Engineers, Golden Anniversary meeting, Michigan State University, East Lansing, Mich.

June 26—North Central States Association of Dairy, Food, Drug, Feed, Fertilizer and Pesticide Officials, Annual Meeting, Sheraton Martin Hotel, Sioux City, Iowa.

June 26-28—Eighth Annual Fertilizer Conference of the Pacific Northwest, Benson Hotel, Portland, Ore. B. R. Bertramson, Washington State College, Pullman, Wash., chairman.

June 26-28—Pacific Branch, Entomological Society of America, 41st Annual Meeting, Multnomah Hotel, Portland, Ore., H. H. Keifer, 1112 Swanston Drive, Sacramento 14, Cal., Secretary-Treasurer.

July 4-5—Alabama Seedsmen's Assn., Battle House, Mobile, Ala.

July 10-14—Plant Food Producers of Eastern Canada, Manoir Richelieu, Murray Bay, Quebec.

July 11-12—Great Plains Anhydrous Ammonia Meeting, Kansas State College, Manhattan, Kansas.

July 17-19—Southwestern Fertilizer Conference and Grade Hearing, Galvaz Hotel, Galveston, Texas.

July 30-31—Fertilizer Meetings and Experiment Station Tours, Auburn, Ala. and Thorsby, Ala., Sponsored by the Alabama Agricultural Experiment Station and Alabama Soil Fertility Society.

Aug. 13-14—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Secretary.

Aug. 14 — Connecticut Agricultural Experiment Station Field Day, Mt. Carmel, Conn. Dr. James G. Horsfall, New Haven, director.

Aug. 28-31—Soil Conservation Society of America, Annual Convention, Asilomar, Cal.

Sept. 5-6—Great Lakes States Anhydrous Ammonia Meeting, Michigan State University, East Lansing, Mich.

Sept. 8-15—International Congress of Crop Protection, Hamburg, Germany.

Oct. 2-4—Eleventh annual Beltwide Cotton Mechanization Conference, Shreveport, La.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 7-8 — Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco. Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Collie, 2217 Tribune Tower, Chicago 11, Ill.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12 — North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13 — Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting. Peabody Hotel, Memphis, Tenn.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. La Salle St., Chicago 1, Ill., Executive Secretary.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

STRAIGHT MATERIALS

LEXINGTON, KY.—About one third of all fertilizer sold in Kentucky in 1950 was in the form of straight materials. In 1956 this proportion declined to 21%.

UNDESIRABLE TREES

HARTSVILLE, S. C.—Demonstrations showing methods of poisoning undesirable hardwoods to release pines for growing were held during May in communities near here. E. K. Pitman, forester for the North Carolina Pulp Co., one of the demonstration sponsors, said that large areas of Darlington County are being taken over by cull hardwood trees that are crowding out valuable young pines. Poisoning the undesirable trees helps restore woodlands to profitable pine production, he said. Results of poisoning during the summer of 1955 were shown to some of the demonstration audiences.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15c per word; minimum charge $2.25. Situations wanted, 10c a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20c per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $10 per column inch.

All Want Ads cash with order.

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